



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

### Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

### About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

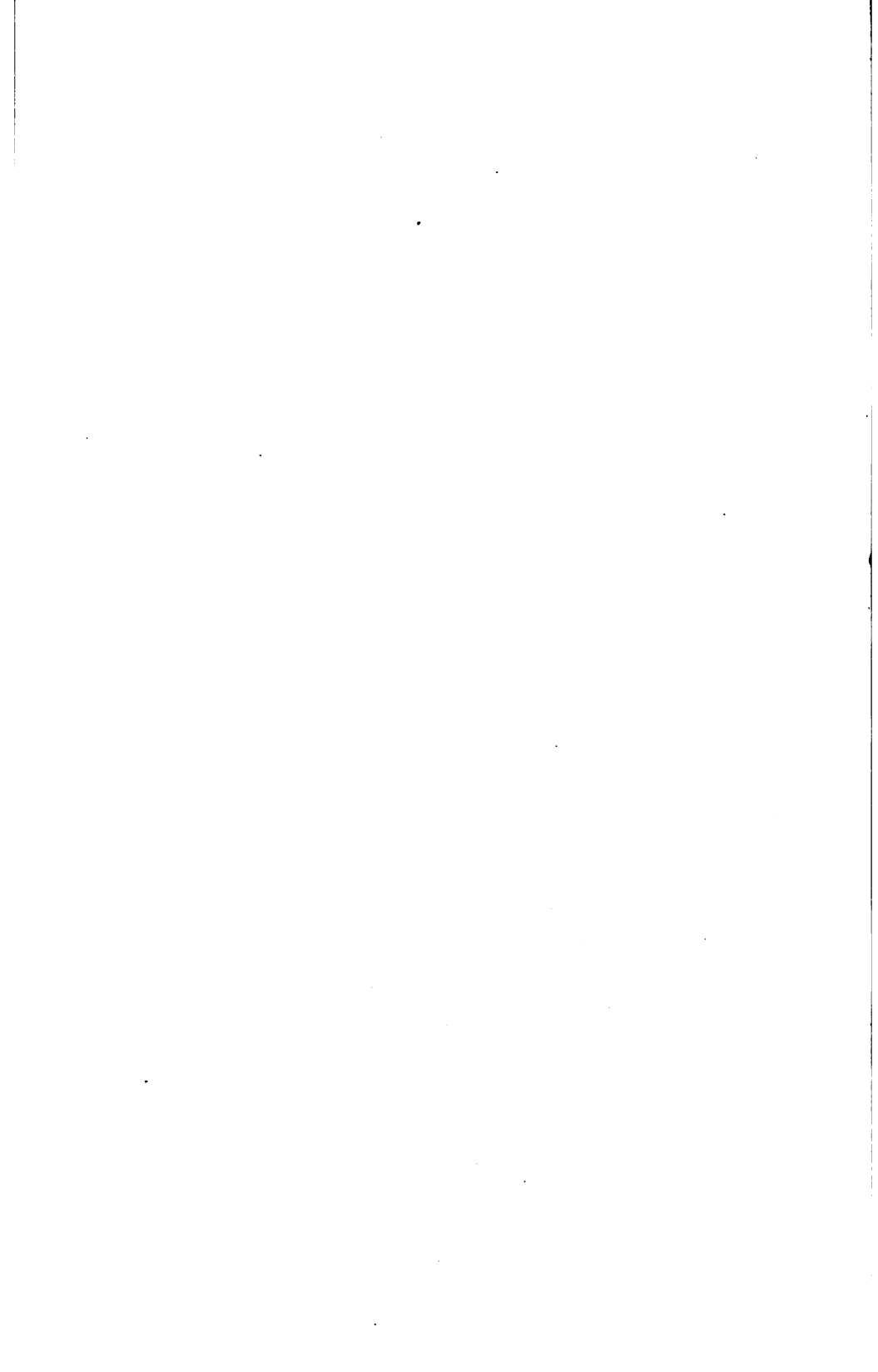
COUNTWAY LIBRARY

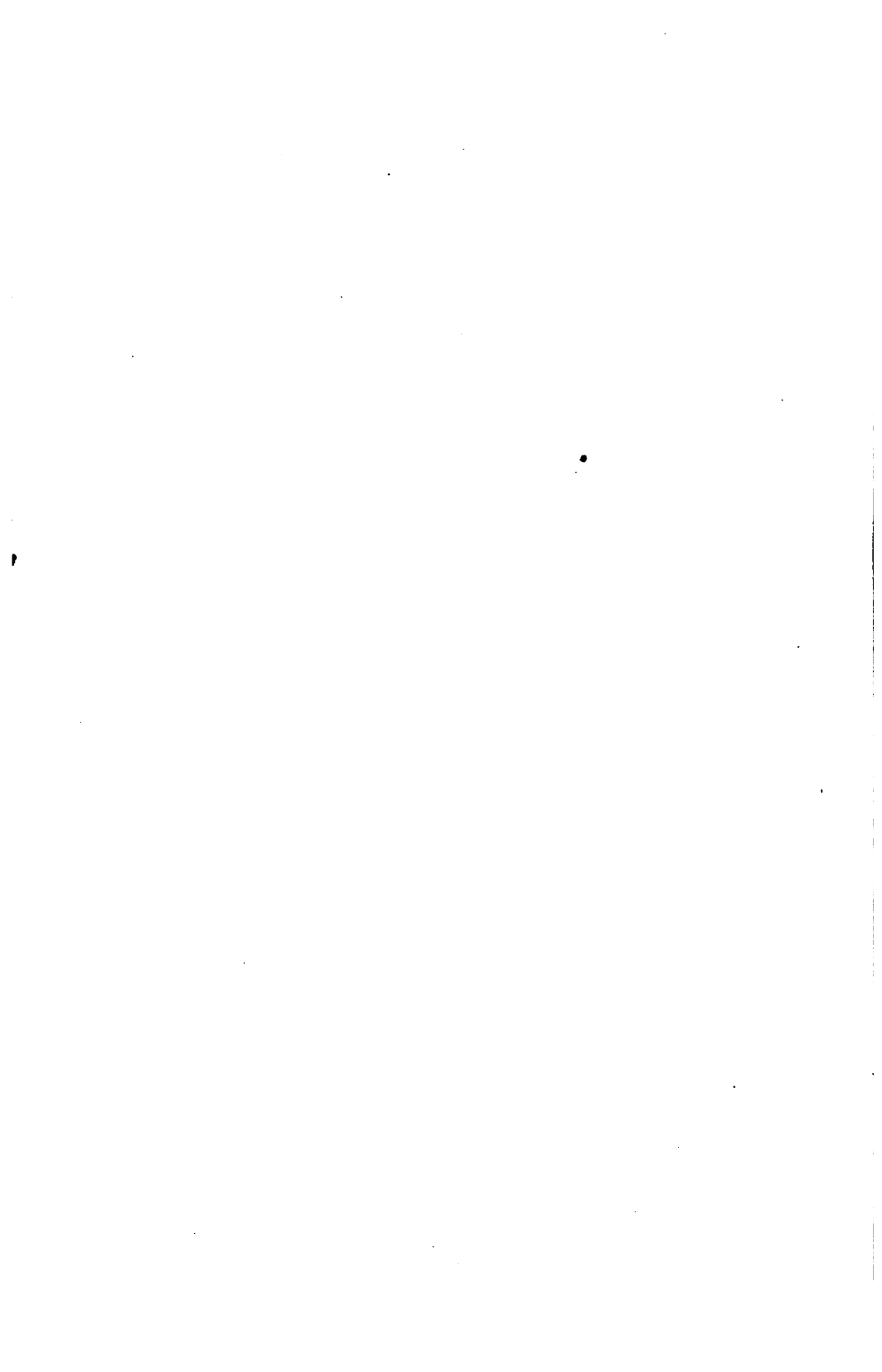


HC 4EVE 6

212.5.405.

THE BOSTON  
**Medical and Surgical**  
JOURNAL.







MANUAL  
OF  
MATERIA MEDICA  
AND  
PHARMACY  

---

MUIR





MANUAL  
OF  
MATERIA MEDICA  
AND PHARMACY

SPECIALLY DESIGNED FOR THE USE OF  
PRACTITIONERS AND MEDICAL, PHARMACEUTICAL,  
DENTAL, AND VETERINARY STUDENTS

BY  
E. STANTON MUIR, Ph.G., V.M.D.  
INSTRUCTOR IN COMPARATIVE MATERIA MEDICA AND PHARMACY IN THE UNIVERSITY  
OF PENNSYLVANIA

---

THIRD EDITION, REVISED AND ENLARGED

---



PHILADELPHIA  
F. A. DAVIS COMPANY, PUBLISHERS  
1904

9371

---

COPYRIGHT, 1904.

BY

F. A. DAVIS COMPANY.

---

[Registered at Stationers' Hall, London, Eng.]

---

---

Philadelphia, Pa., U. S. A.  
The Medical Bulletin Printing-house,  
1914-16 Cherry Street.

---

## PREFACE TO THIRD EDITION.

---

THIS work, originally published eight years ago and a second edition four or five years later, is intended to give to practitioners and students of medicine, in as concise and clear a manner as possible, those points which are of value, without the lengthy detail usually found in text-books. Many new and some old drugs and pharmaceutical preparations have been intentionally omitted from this edition, and only those are considered which are in everyday use and of recognized therapeutic value.

It is not an easy task to adopt a system of classification suiting the ideas of all; so the author chose to arrange the drugs in alphabetical order, concluding that this arrangement would be more easily comprehended and applied by those for whom the work is intended than would any other more complicated form.

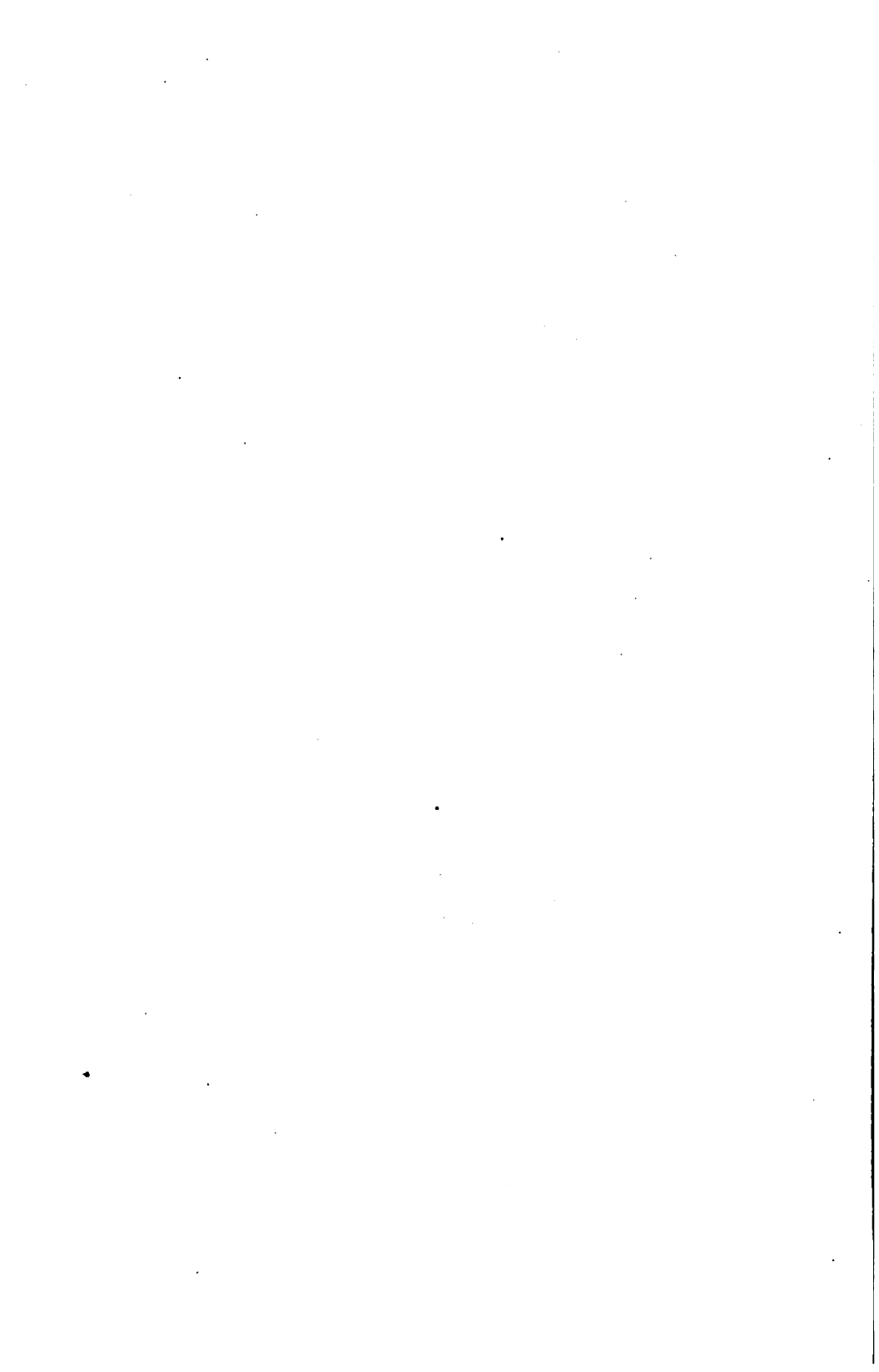
The first part is not intended as a study of botany, etc., but merely a synopsis to familiarize the student with those terms which are frequently used in Parts II and III. In Part II, in considering the individual drugs, only those essential points which are of value are noted, it being the author's desire to eliminate all matter of a superfluous nature.

Part III, devoted to pharmacy, is intended to familiarize the student with the processes used in pharmaceutical work, together with the preparations, particularly those which are compound.

The metric system is used primarily, because it is becoming more generally employed each year.

The author wishes to acknowledge his indebtedness to the standard works of Wood, Maisch, Brunton, Winslow, Finlay Dunn, and Mann, as well as the United States Pharmacopœia and Dispensatory.

E. S. M.



# CONTENTS.

---

## PART I.

	PAGES
GENERAL CONSIDERATIONS .....	9-10
Divisions of Materia Medica.....	9
Subdivisions of the Vegetable World.....	10
Root .....	10-11
Leaves .....	10-12
Seed .....	12-13
Fruit .....	12-13
Definitions of Names of Therapeutic Actions.....	13-14

## PART II.

CONSIDERATION OF INDIVIDUAL DRUGS.....	15-136
--	--------

## PART III.

PHARMACY .....	137-185
Processes of Mechanical Subdivision.....	137-138
Mechanical Processes.....	138-139
Pharmaco-chemical Processes.....	139-140
Processes Requiring the Application of Heat.....	140-141
Pharmaceutical Terms.....	141
Metric System of Weights and Measures.....	141-144
Classes of Official Preparations.....	144-165
Individual Official Preparations.....	165-183
Incompatibility .....	183-185
INDEX .....	186











## PART I.

### GENERAL CONSIDERATIONS.

MATERIA MEDICA is a compound subject, consisting of four distinct divisions, as follows: *Materia Medica* proper, *Pharmacy*, *Pharmacology*, and *Therapeutics*. It is our purpose to consider the first two and dismiss pharmacology and therapeutics with the consideration of some few definitions and features which are so closely interwoven with materia medica itself as to make their consideration necessary in an explanatory sense.

MATERIA MEDICA proper is the science which treats of the crude drug and, if it is of vegetable origin, gives the natural order of plants to which it belongs, with the habitat; describes the plant as well as the part which is official; names the principal constituents; and, if it is poisonous, considers this subject and the antidote therefor, together with the dosage of the crude drug and its preparations. It also gives the physical characteristics of organic, inorganic, and animal drugs, together with other considerations, including the toxicology and posology.

Included in materia medica proper are four classes of drugs, as follows:—

1. ORGANIC.—The carbon compounds, which include the alcohols, ethers, chloroform, iodoform, and all preparations made synthetically or prepared artificially.

2. INORGANIC.—All the metals and their salts.

3. VEGETABLE.—Those drugs which are of vegetable origin.

4. ANIMAL.—Drugs derived from the animal kingdom.

PHARMACY teaches us the mode of making preparations from the crude drug, and how to combine them for administration.

PHARMACOLOGY is the study of the physiological action of medicines.

THERAPEUTICS teaches us the knowledge of the use of medicines in disease, and how to apply them in practice. Therapeutics is divided into two classes: *Rational* and *Empirical*.

RATIONAL THERAPEUTICS is the administration of a drug or preparation because we know that such drug or preparation is a specific or will counteract certain morbid conditions we have diagnosed in our patient.

EMPIRICAL THERAPEUTICS relates to the administration of a drug in such cases where the pathologist has not given us the true nature of the disease under treatment, or where the use of the drug is based on clinical experience.

### THE VEGETABLE WORLD.

The vegetable world is subdivided into two great kingdoms: *Cryptogamia* and *Phænogamia*.

CRYPTOGAMOUS PLANTS are those which do not bear flowers. There are few drugs in this class that interest us. Mosses, ferns, lichens, and mushrooms belong to this class. These plants are reproduced by spores, which are usually found on the under side of the leaf.

PHÆNOGAMOUS PLANTS.—Those which bear flowers and have distinct reproductive organs. They are divided into two classes: *Monocotyledon*, or *endogenous*, and *Dicotyledon*, or *exogenous*.

MONOCOTYLEDONS are so named from the fact that they show but one cotyledon or seed-leaf at a time, and are central growers.

DICOTYLEDONS have two seed-leaves, and are the commonest variety of plants. A plant, regardless of the variety to which it belongs, consists of stalk, or overground stem, and root, underground stem, or that part which ordinarily grows downward, fixing the plant to the soil. The principal variations of the root are the *rhizome*, *root proper*, *tuber*, *corm*, *bulb*, etc.

A RHIZOME is a horizontally elongated root, more or less thickened, which throws out an overground stem annually, as





bloodroot, aconite, etc. The enlargement of such a root is generally due to a deposition of starch in the tissues.

A **TUBER** is the enlargement of a growing bud of an underground stem; the deposit of starch in the tuber forms nourishment for the development of future buds, and constitutes the bulk of the tuber, as jalap, potato, and artichoke.

A **BULB** is an abbreviated stem, is broad, and is made up of scales, which are imperfect leaves and contain, principally, an acrid juice, as squill and garlic.

A **CORM** is a solid bulb, or a tuber growing in the form of a bulb; is fleshy, has an underground stem, in the form of rootlets. It is of an oval or rounded form, and is compact in texture. Example: colchicum.

### LEAVES.

There are two kinds: *simple* and *compound*.

**SIMPLE** leaves are those which are of one piece.

**COMPOUND** leaves are those which are divided into separate pieces, or a number of pieces attached to the branch by a common stalk.

### FORMS OF LEAVES.

**CORDATE**—Heart-shaped.

**CRUCIFEROUS**—Cross-shaped.

**HALBERD**—Halberd-shaped.

**LANCEOLATE**—Lance-shaped.

**OBOVATE**—Broad toward the apex, tapering to the foot-stalk.

**OVATE**—Wide toward the base, pointed at the apex.

**RENIFORM**—Kidney-shaped.

**SAGITTATE**—Arrow-shaped.

### MARGINS.

**CRENATE**—Rounded edges.

**DENTATE**—Toothed.

**INCISED**—Margin deeply and irregularly cut.

**LOBED**—Where segments are more or less well defined.

**REPAND**—A wavy margin.

**SERRATED**—Saw-edged (where points incline toward apex).

**SINUATE**—Wavy, but convexities and concavities more pronounced than the repand.

### VENATION.

This pertains to the arrangement of veins in the leaf. The commonest two forms of venation are *reticulate* and *parallel*.

**RETICULATE**.—Those leaves are termed reticulate, or *netted-veined*, when the petiole is continued into the leaf in the form of one or two principal veins which send off branches on both sides and form a kind of network. Characteristic of dicotyledons.

**PARALLEL**.—When the petiole divides as soon as it enters the leaf into several veins which run parallel with each other to the apex and are connected only by small transverse fibers. This form is also termed *nerved* leaves. Characteristic of monocotyledons.

### PHYLOTAXIS.

Phylotaxis is the arrangement of the leaves on the stalk.

**ALTERNATE**, where the leaves alternate on the stalk.

**OPPOSITE**, where two leaves grow opposite on the same stalk.

**VERTICILLATE**, where the leaves surround the stalk at a common line; also called *whorled* leaves.

### SEED.

This is the true fruit, and is the fertilized and matured ovule and consists of the nucleus generally inclosed within two integuments, or coats.

The **TESTA** is the outer covering of the seed.

The **TEGMEN** is the inner coat.

The **FUNICULUS** is the seed-stalk—the part which connects the seed with the other parts of the plant.







The **HILUM** is the scar left on the face of the seed by its separation from the funiculus.

The **NUCLEUS** consists of the albumin and the embryo. Albumin contains nourishment for the new plant.

The **EMBRYO** is the undeveloped plant, and contains all the parts of the plant in an undeveloped state.

### DEFINITIONS OF NAMES OF THERAPEUTIC ACTIONS.

**ABSORBENT**—A drug that will produce absorption of deleterious material.

**ALTERATIVE**—So modifies nutrition as to overcome morbid processes.

**ANÆSTHETIC**—Will produce unconsciousness, or anæsthesia.

**ANALGESIC**—Allays pain. The word anodyne is almost synonymous.

**ANAPHRODISIAC**—Allays sexual feeling.

**ANTACID**—Neutralizes acid conditions of stomach or intestines.

**ANTHELMINTIC**—Destroys intestinal worms.

**ANTIHYDROPIC**—Reduces dropsical swelling.

**ANTIPERIODIC**—Relieves periodical fevers.

**ANTIPYRETIC**—Reduces the temperature of the body in fevers.

**ANTISEPTIC**—Prevents putrefaction.

**ANTISPASMODIC**—Relieves nervous irritability and spasms.

**APERIENT**—A mild purgative.

**APHRODISIAC**—Increases sexual power or excitement.

**ASTRINGENT**—Power of influencing vital contractility, thereby condensing the tissues.

**CARDIAC DEPRESSANT**—Lessens the action of the heart.

**CARDIAC STIMULANT**—Stimulates the action of the heart.

**CHOLAGOGUE**—Increases the flow of bile.

**DEMULCENT**—Mucilaginous mixture, and applied to irritated surfaces has a soothing effect.

**DETERGENT**—Cleanses wounds.

**DIAPHORETIC**—Produces sweating.

**DIURETIC**—Increases the flow of urine.

ECBOLIC—Produces abortion.

EMETIC—Produces vomiting.

EMMENAGOGUE—Increases menstrual flow.

EMOLLIENT—Softens and protects animal tissue.

ERRHINE—Increases the flow of nasal secretion.

ESCHAROTIC—Very strong caustic.

EXPECTORANT—Increases or changes the bronchial or pulmonary secretions.

FEBRIFUGE—Combats fevers.

HÆMOSTATIC—Arrests internal hæmorrhages and acts by being absorbed by the blood.

HYDRAGOGUE—Produces watery stools.

HYPNOTIC—Produces sleep.

MYDRIATIC—Causes dilatation of the pupil of the eye.

MYOTIC—Causes contraction of the pupil of the eye.

NARCOTIC—Combined action of anodyne and hypnotic; produces narcosis, or sleep.

NUTRIENT—Nourishes the general system.

OXYTOCIC—Causes contraction of the uterus.

PROPHYLACTIC—Preventive measures against disease.

PROTECTIVE—Protects a part when applied locally.

REFRIGERANT—Reduces the temperature of the body.

RUBEFACIENT—Produces local irritation and redness.

SIALAGOGUE—Increases salivary flow.

SOMNIFACIENT—Produces sleep.

SOPORIFIC—Produces sleep.

STIMULANT—Increases functional activity.

STOMACHIC—A gastric stimulant.

STYPTIC—Arrests hæmorrhages, applied locally.

SUDORIFIC—Produces sweating.

TÆNICIDE—Destroys tapeworms.

TONIC—Increases tone of system by stimulating nutrition; action is permanent.

VERMIFUGE—Expels intestinal worms.

VESICANT—Produces blisters.





## PART II.

### MATERIA MEDICA.

#### ACACIA.

GUM ARABIC. Natural order, LEGUMINOSÆ. Habitat, Northern Africa and Australia.

DESCRIPTION.—A gummy exudation, from *Acacia Senegal*, a thorny, prickly shrub, found in North and South Africa, Senegambia, and Australia. Gum arabic of commerce is in irregular drops, formed by the exudation of the gum, or sap, through the bark. White or pale yellow in color; taste is bland and sweetish; mucilaginous, odorless, and soluble in twice its weight of water.

OFFICIAL PREPARATIONS.—Mucilago Acaciæ and Pulvis Cretæ Compositus.

ACTIVE PRINCIPLE.—Arabin, a carbohydrate, is found in the gum as an arabate of potassium or calcium.

INCOMPATIBILITY.—Gum arabic is incompatible with any alcoholic or oily liquid and with most of the lead solutions.

THERAPEUTIC ACTION.—Demulcent.

DOSE.—Adult, 4.0 to 8.0 gm. (ʒj to ʒij). Horse, 32.0 to 64.0 gm. (ʒj to ʒij).

#### ACETANILIDUM.

ACETANILID. Almost identical with and can be used in place of antipyrin and antifebrin.

PREPARATION.—From aniline and glacial acetic acid.

DESCRIPTION.—Colorless, crystalline powder; somewhat flaky; no odor; has a slightly bitter, burning taste. Insoluble

in cold water; soluble to a slight degree in hot water. Soluble in alcohol and all alcoholic preparations. Chemically it is phenylacetamide. Fuses at 101° C. Boils at 295° C. Has the same action on horse and man. Small doses produce quiet. Large doses, in fevers, are followed by a marked reduction in the temperature of the body. A cyanosis of the gums occurs after large doses, due to the production of methæmoglobin in the blood. Fall of temperature is accompanied by a variable amount of sweating. It is broken up in the system into aniline and acetic acid; the drug is eliminated as pyramidophenol sulphate in the urine.

**THERAPEUTIC ACTION.**—Antipyretic and analgesic.

**DOSE.**—Adult, 0.06 to 0.5 gm. (gr. j to gr. viij). Horse, 3.0 to 8.0 gm. (gr. xlv to ʒij). Dog, 0.33 to 0.66 gm. (gr. v to gr. x).

### ACETUM.

**VINEGAR.** Impure dilute acetic acid, and to be official should contain 12 per cent. of free acetic acid.

**SOURCE.**—By fermenting apple-juice, infusion of malt, or refuse from the wine-press. Any liquid containing sugar undergoes acetous fermentation (*Mycoderma acetii*). It is essential to have a heat of from 75° to 90° F. Sugar and water at the proper heat will make vinegar. In England it is generally made from an infusion of malt, and is then diluted with water. In France it is made by fermenting the refuse of the wine-press. In America it is made by fermenting the juice of apples or the pomace left in the cider-press.

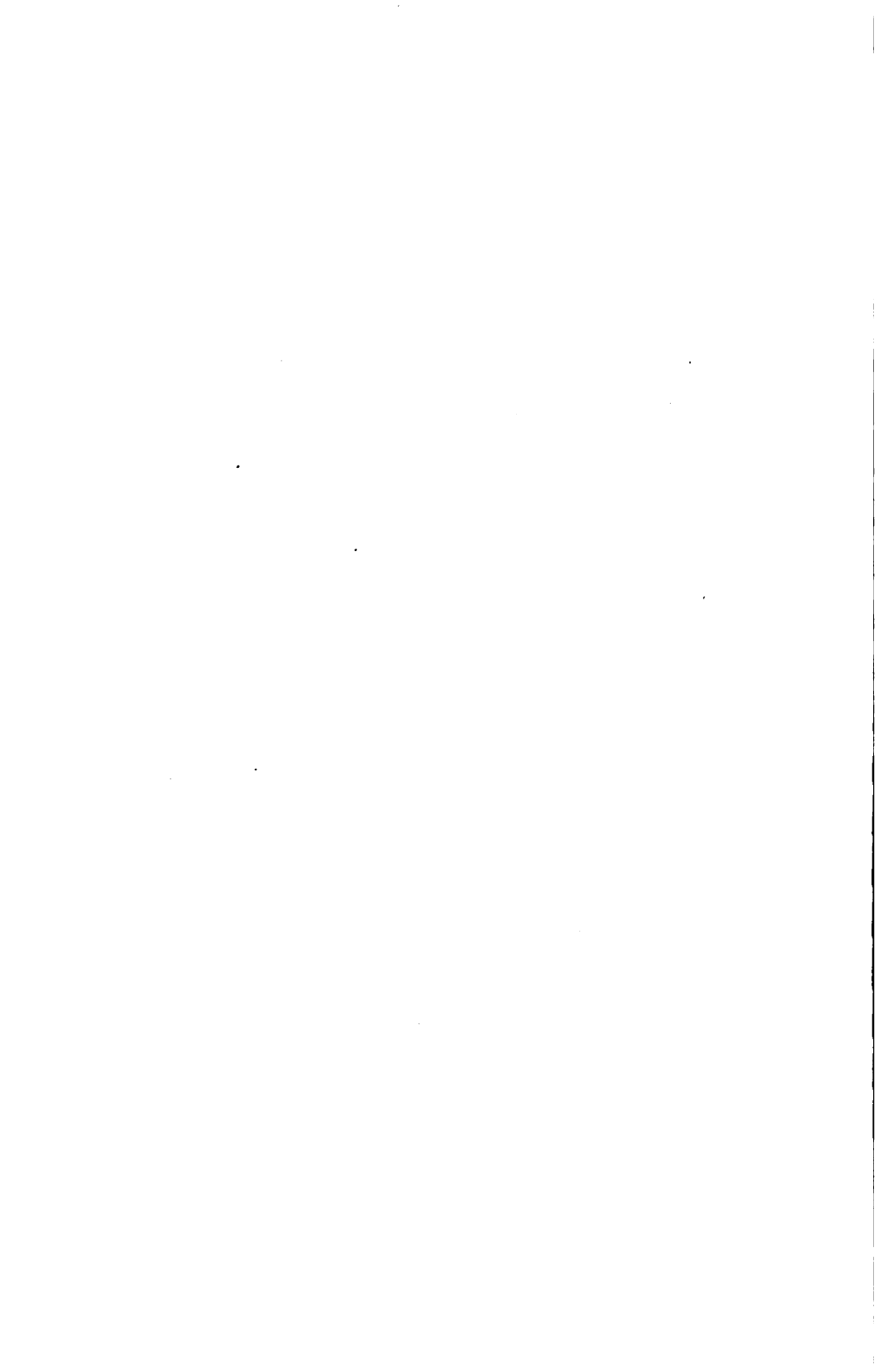
**DESCRIPTION.**—It is brownish in color, and used in human practice in scurvy. It is an antidote for alkaline poisoning. Taste is sour and biting. Odor is pungent.

**THERAPEUTIC ACTION.**—Refrigerant and antiscorbutic.

**DOSE.**—Adult, 4.0 to 16.0 c. c. (fʒj to fʒiv). Horse, 30.0 to 90.0 c. c. (fʒj to fʒiiij).







**ACIDUM ACETICUM.**

ACETIC ACID ( $C_2H_4O_2$ ). Sp. gr., 1.047.

DESCRIPTION.—This is a strong acid, never used internally. Colorless liquid, slightly heavier than water; has a pungent, penetrating odor and a sharp vinegarlike taste and contains 36 per cent. of monohydrated acetic acid.

PREPARATION.—By redistilling impure acetic acid or oil of smoke (pyroligneous acid), which is prepared by the destructive distillation of wood. The latter is a brownish-black liquid with a strong smell of smoke.

OFFICIAL PREPARATION.—Acidum Aceticum Dilutum.

TOXICOLOGY.—Large doses give poisonous results (due to the caustic action). Danger of asphyxia, due to spasm of the glottis.

ANTIDOTES.—Tracheotomy. Demulcents to counteract the action on mucous membrane. Soap. The chemical antidotes are alkalies and carbonates to neutralize.

**ACIDUM ARSENOSUM.**

ARSENOUS ACID ( $As_2O_3$ ). Sp. gr., 3.69 to 3.73.

DESCRIPTION.—It appears, when freshly sublimed, in transparent lumps, which become opaque on the exterior, after standing a while, on account of the absorption of moisture from the air. Found in Bohemia and Saxony, combined with the cobalt ores, and separated in the smelting. Breaks with a vitreous or shining fracture and entirely volatilizes at  $405^\circ$  F. Odorless and almost tasteless, a somewhat sweetish taste on the palate and a characteristic garlicky odor when heated. It is sparingly soluble in cold water; 1 pint will dissolve but 20 grains; but, if put in cold water and boiled, 1 pint will dissolve 293 grains and at the boiling-point 1 pint will hold 800 grains; the difference will crystallize on cooling. It is soluble in 5 parts of glycerin.

OFFICIAL PREPARATIONS.—Liquor Acidi Arsenosi and Liquor Potassii Arsenitis.

**THERAPEUTIC ACTION.**—Alterative, tonic, and escharotic.

**TOXICOLOGY.**—Large doses cause gastroenteritis, accompanied by extreme pain, and in some animals nausea followed by vomiting; purging, which is serous and perhaps bloody; at post-mortem is seen general gastroenteritis and fatty degeneration.

**ANTIDOTE.**—Freshly precipitated hydrated sesquioxide of iron.

**DOSE.**—Adult, 0.001 to 0.003 gm. (gr.  $\frac{1}{64}$  to gr.  $\frac{1}{20}$ ). Horse, alterative, 0.065 to 0.2 gm. (gr. j to gr. iij); tonic, 0.2 to 1.0 gm. (gr. iij to gr. xv). Dog, alterative, 0.016 to 0.048 gm. (gr.  $\frac{1}{8}$  to gr.  $\frac{1}{2}$ ); tonic, 0.03 to 0.065 gm. (gr.  $\frac{1}{8}$  to gr. j).

### ACIDUM BENZOICUM.

**BENZOIC ACID**, Flowers of Benzoin ( $C_7H_6O_2$ ). Sp. gr., 1.29.

**DESCRIPTION.**—It appears in soft white crystals, of a silky luster, which are not easily pulverized; they have a balsamic odor, and a warm, acidlike taste. Insoluble in water, soluble in ether, and combines with the alkalies, forming salts termed “benzoates.”

**PREPARATION.**—From gum benzoin by sublimation.

**THERAPEUTIC ACTION.**—Stimulant, expectorant, local irritant, and antiseptic.

**DOSE.**—Adult, 0.3 to 1.0 gm. (gr. v to gr. xv). Horse, 8.0 to 16.0 gm. (3ij to 3iv). Dog, 0.66 to 1.3 gms. (gr. x to gr. xx).

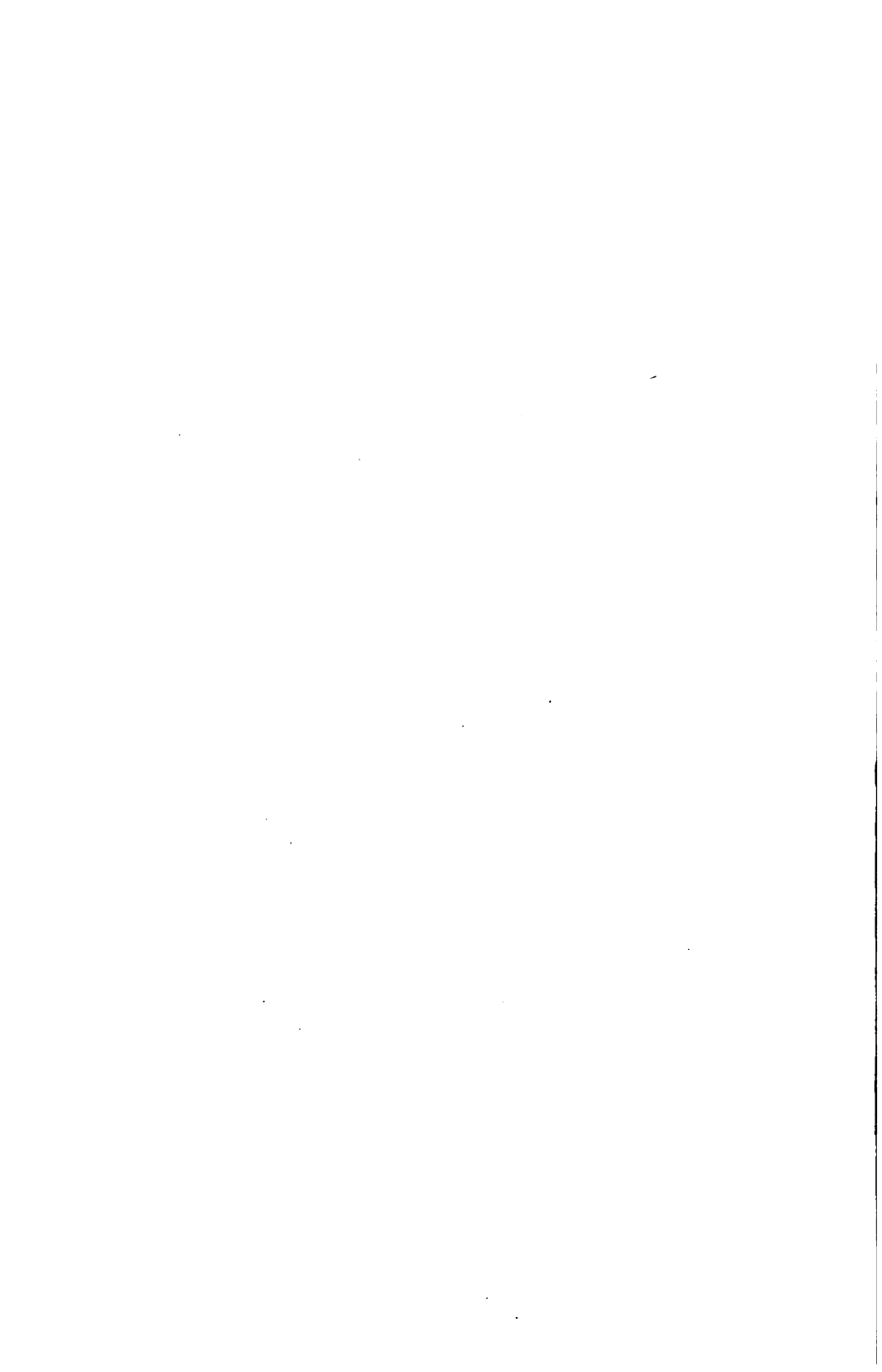
### ACIDUM BORICUM.

**BORIC ACID** ( $H_3BO_3$ ). Sp. gr., 1.434.

**SOURCE.**—Impregnating water with a charge of gas from volcanoes, then evaporating the charged water in leaden pans, and the crystals form. Obtained in Italy and California.

**DESCRIPTION.**—Transparent, colorless, hexagonal crystals not affected by air; odorless; slightly bitter, cooling taste, and a feebly acid reaction. Soluble in 3 parts of boiling water and 25 parts of cold water, slightly soluble in alcohol, freely soluble





in glycerin, and insoluble in ether. Contains 44 per cent. of water of crystallization.

OFFICIAL PREPARATION.—Glyceritum Boroglycerini.

THERAPEUTIC ACTION.—Detergent and antiseptic.

DOSE.—Adult, 0.3 to 0.65 gm. (gr. v to gr. x). Horse, 8.0 to 16.0 gm. (3ij to 3iv). Foals and calves, 0.66 to 2.66 gm. (gr. x to gr. xl). Dog, 0.33 to 1.0 gm. (gr. v to gr. xv).

### ACIDUM CARBOLICUM.

CARBOLIC ACID ( $C_6H_5OH$ ). Sp. gr., 1.065.

SYNONYMS.—Phenic acid, phenylic acid, phenol, and phenylic alcohol.

DESCRIPTION.—White crystalline plates or long crystalline needles. On standing they get pink, and sometimes red. On exposure to air the crystals deliquesce. Heat will liquefy them, and they will remain liquid on addition of from 5 to 10 per cent. of water or glycerin. The pure drug melts at  $106^{\circ}$  F., forming an oily liquid. It boils at  $359^{\circ}$  F. Peculiar, not unpleasant odor, and a sweet, burning taste, and when applied to tissue causes it to assume a milky-white appearance. This is caused by the coagulation of albumin. It burns with a red flame. Soluble in alcohol, glycerin, ether, and the oils. Destroys all lower forms of life, and will arrest fermentation. Discovered by Runge in 1834.

PREPARATION.—It is made by treating coal-tar with an alkali and then with an acid, and finally distilling. The product is then a brownish-black liquid: *crude carbolic acid*. This is redistilled and the crystals allowed to form.

OFFICIAL PREPARATION.—Glyceritum Acidi Carbolici.

THERAPEUTIC ACTION.—Germicide, disinfectant, irritant and caustic, local anæsthetic, and antipyretic.

TOXICOLOGY.—It is a violent corrosive poison, acting in a short time. Symptoms after poisoning are: whitened mucous membrane, odor on the breath, nausea, cold sweats, stupor, unconsciousness, and irregular respirations. Feeble pulse, 40 to 50

a minute, and then almost always death. Smoky urine. Quick death ensues from heart-failure; when death is slower it is due to paralysis of respiration. Small doses have the latter effect.

ANTIDOTES.—Soluble nonpoisonous sulphates, dilute sulphuric acid, demulcents, and strong coffee. *Do not use oil.*

DOSE.—Adult, 0.03 to 0.1 gm. (gr. ss to gr. iss). Horse, 1.0 to 2.0 gm. (gr. xv to gr. xxx). Dog, 0.03 to 0.06 gm. (gr. ss to gr. j).

### ACIDUM CHROMICUM.

CHROMIC ACID ( $\text{CrO}_3$ ).

DESCRIPTION.—Brilliant, crimson-red prisms; small and needle shaped; strong, acid, metallic taste; very deliquescent and soluble in water. Melts at about  $360^\circ \text{F}$ . When dropped into strong alcohol, a violent reaction takes place, due to the liberation of oxygen. A large quantity will cause an explosion.

PREPARATION.—Add slowly 150 parts of cold, saturated solution of bichromate of potassium to 100 parts of strong sulphuric acid, set aside until cool, and crystals allowed to form.

THERAPEUTIC ACTION.—Escharotic, antiseptic, and germicide.

TOXICOLOGY.—Violent corrosive poison, something like carbolic acid.

ANTIDOTES. — Soap, mucilaginous drinks, and mineral emetics.

### ACIDUM CITRICUM.

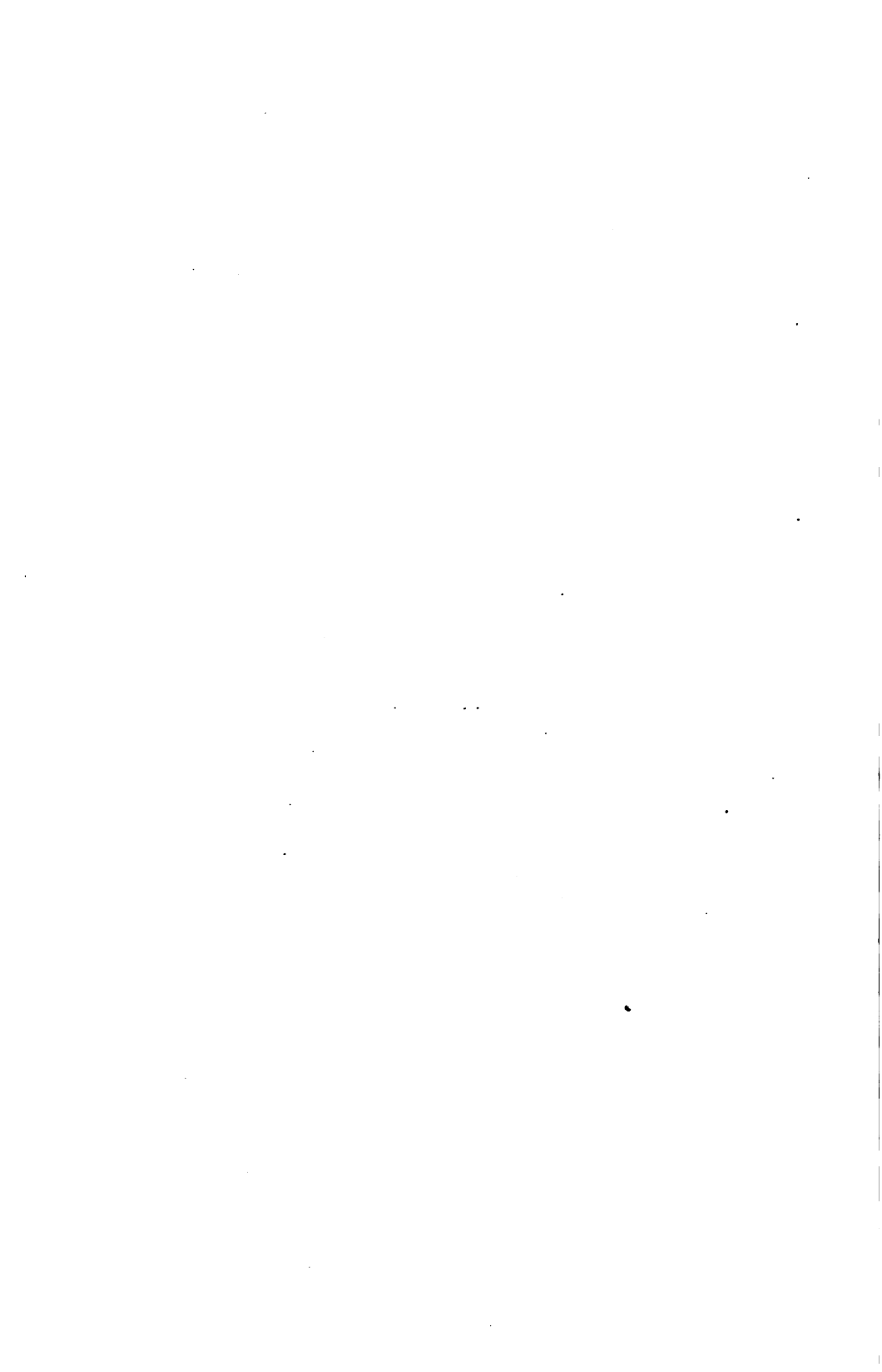
CITRIC ACID ( $\text{H}_3\text{C}_6\text{H}_5\text{O}_7$ ). Sp. gr., 1.6.

DESCRIPTION.—A white, crystalline solid, in the form of rhomboidal crystals, which do not change in dry air, but in moist air they first deliquesce, then effloresce. The crystals are clear; the powder is milky white, has a strongly acid taste, and will dissolve in three-fourths its weight of cold water. It is soluble in alcohol, but insoluble in pure ether, and is nonpoisonous.

PREPARATION.—Made from the juice of limes and lemons by treating with carbonate of lime; this forms a soluble citrate of calcium. Filtered, then washed with water, and treated with







dilute sulphuric acid (in this way removing the calcium), leaving citric acid in the solution. It is then filtered and evaporated, and the crystals allowed to form.

OFFICIAL PREPARATION.—Syrupus Acidi Citrici.

THERAPEUTIC ACTION.—Refrigerant and antiscorbutic.

DOSE.—Adult, 0.3 to 2.0 gm. (gr. v to gr. xxx). Horse, 8.0 to 16.0 gm. (3ij to 3iv). Dog, 0.6 to 1.3 gm. (gr. x to gr. xx).

### ACIDUM GALLICUM.

GALLIC ACID ( $\text{HC}_7\text{H}_5\text{O}_6$ ).

DESCRIPTION.—Delicate, silky crystals; pale-brown color; no odor; taste is sour and astringent. Soluble in 100 parts of cold and 3 of boiling water, in alcohol, and in glycerin. Contains 9.5 per cent. of water of crystallization.

PREPARATION.—From powdered nutgall and water; filtered through animal charcoal and evaporated, and crystals form.

THERAPEUTIC ACTION.—Astringent.

DOSE.—Adult, 0.3 to 1.3 gm. (gr. v to gr. xx). Horse, 8.0 to 15.0 gm. (3ij to 3iv). Dog, 0.3 to 1.3 gm. (gr. v to gr. xx).

### ACIDUM HYDROCHLORICUM.

HYDROCHLORIC ACID ( $\text{HCl}$ ). Sp. gr., 1.16.

DESCRIPTION.—Solution of hydrochloric-acid gas in water. Pure, colorless liquid, having a strong caustic taste; fumes produce a strangling sensation, due to spasm of the glottis. To be official must contain 31.8 per cent. of free hydrochloric acid. The smoky fumes emitted are caused by the gas mixing with the air. Freezes at 60° F. Test,  $\text{AgNO}_3$ . The commercial acid has a yellow color, due to the presence of sesquichloride of iron. Found to predominate in gastric juice.

PREPARATION.—By impregnating water with the gas evolved by treating sodium chloride with sulphuric acid.

OFFICIAL PREPARATIONS.—Acidum Hydrochloricum Dilutum, Acidum Nitrohydrochloricum, and Acidum Nitrohydrochloricum Dilutum.

**THERAPEUTIC ACTION.**—Tonic and caustic.

**TOXICOLOGY.**—Corrosive poison, somewhat weaker than sulphuric acid.

**ANTIDOTES.**—Soap, alkalies, carbonates, and magnesia.

**DOSE.**—Adult, 0.6 to 1.3 c. c. (*mx* to *mxx*). Horse, 3.75 to 7.5 c. c. (*f3j* to *f3ij*). Cattle, 5.0 to 11.0 c. c. (*mlxxx* to *f3iij*). Dog, 0.625 to 2.0 c. c. (*mx* to *mxxx*).

It must always be well diluted for internal administration.

### ACIDUM HYDROCYANICUM DILUTUM.

**DILUTED HYDROCYANIC ACID, Prussic Acid.**

**DESCRIPTION.**—A colorless liquid composed of 2 per cent., by weight, of *absolute hydrocyanic acid* (HCN) and 98 per cent. of water, and having the characteristic odor of peach-kernels. It may be entirely volatilized by heat and loses its gas when kept in an open vessel in a warm place. It is extremely poisonous and should be tasted with great care, if at all.

**PREPARATION.**—This acid is prepared by distilling a mixture of ferrocyanide of potassium, sulphuric acid, and water; it may also be prepared by precipitating cyanide of silver from its aqueous solution with hydrochloric acid.

**THERAPEUTIC ACTION.**—Cardiac depressant, calmative, and local sedative.

**TOXICOLOGY.**—Hydrocyanic acid kills so quickly that it is almost useless to resort to the use of any form of treatment for it. However, as it kills by asphyxia, the intravenous or subcutaneous administration of atropine should be resorted to after the stomach has been emptied. The use of ammonia by inhalation, by the mouth, or even injected into a vein might be tried. Artificial respiration should not be neglected, as it has proven successful in several cases. Alternate hot and cold douches have also proved to be important factors in the antidotal treatment.

**DOSE.**—Adult, 0.055 to 0.18 gm. (*mj* to *mijj*). Horses, 1.3 to 2.6 gm. (*mxx* to *mxl*). Dogs and other small animals, 0.06 to 0.2 gm. (*mj* to *mijj*).





**ACIDUM NITRICUM.**

NITRIC ACID, *Aquæ Fortis* ( $\text{HNO}_3$ ). Sp. gr., 1.42.

DESCRIPTION.—A colorless liquid with a strong, burning, sour taste; fumes rather suffocating, though not so strong as  $\text{HCl}$ . Age or exposure to air turns it yellow; therefore it should be kept in blue bottles. When mixed with  $\text{HCl}$  makes *aqua regia*: the only acid dissolving gold. Boils at  $250^\circ \text{F}$ . Contains 68 per cent. of anhydrous nitric acid.

PREPARATION.—It is made by distilling together nitrate of potassium and sulphuric acid and collecting the gas in water. At the specific gravity of 1.42 is official.

OFFICIAL PREPARATIONS. — *Acidum Nitricum Dilutum*, *Acidum Nitrohydrochloricum*, and *Acidum Nitrohydrochloricum Dilutum*.

THERAPEUTIC ACTION.—Tonic, escharotic, and antiseptic.

TOXICOLOGY.—Extremely poisonous, coloring tissue yellow. Internally, gastroenteritis, nausea. Collapse and death.

ANTIDOTES.—Oils; otherwise the same as hydrochloric acid.

DOSE.—Adult, 0.5 to 0.8 c. c. (*mviii* to *mxij*). Horses and cattle, 1.875 to 4.0 c. c. (*mxxv* to *f3j*). Dog, 0.065 to 0.12 c. c. (*mj* to *mij*).

It must always be properly diluted.

**ACIDUM SALICYLICUM.**

SALICYLIC ACID ( $\text{C}_7\text{H}_6\text{O}_3$ ).

DESCRIPTION.—Fine, white, silky, needle-shaped crystals, upon which air has no effect. Aromatic odor and sweetish, burning taste. Soluble in alcohol and ether; insoluble in water. Was first obtained from the bark of the white willow-tree (*Salix alba*).

PREPARATION. — By passing carbon-dioxide gas through a solution of carbolic acid in caustic soda; also obtained from oil of wintergreen, which contains 81 per cent.

**THERAPEUTIC ACTION.**—Antiseptic, antirheumatic, and antipyretic. Used as antiseptic in aqueous solution of 1 to 10. Stops fermentation.

**DOSE.**—Adult, 0.3 to 1.0 gm. (gr. v to gr. xv). Horses and cattle, 4.0 to 12.0 gm. (3j to 3iij). Dogs and sheep, 0.66 to 2.0 gm. (gr. x to gr. xxx) in solution, pill, or powder.

### ACIDUM SULPHURICUM.

**SULPHURIC ACID, Oil of Vitriol ( $H_2SO_4$ ).** Sp. gr., 1.835.

**DESCRIPTION.**—A colorless, odorless, syrupy liquid of intensely caustic taste and having a great affinity for water. It acts as a powerful caustic on living tissue, which it blackens.

**PREPARATION.**—Burning sulphur and nitrate of potassium over a stratum of water contained in leaden vessels; drawn off and evaporated.

**OFFICIAL PREPARATIONS.**—Acidum Sulphuricum Aromaticum and Acidum Sulphuricum Dilutum.

**THERAPEUTIC ACTION.**—Escharotic, tonic, and astringent.

**TOXICOLOGY.**—Indicated by a very bad breath, vomit of a reddish color, mucous membrane black, colic, convulsions, and death.

**ANTIDOTES.**—Chalk, magnesia, soap, with milk and water.

**DOSE.**—Adult (dilute acid), 0.3 to 1.3 c. c. (mv to mxx). Horse, 4.0 to 8.0 c. c. (f3j to f3ij). Cattle, 8.0 to 15.0 c. c. (f3ij to f3iv). Dog, 0.6 to 2.0 c. c. (mx to mxxx).

### ACIDUM TANNICUM.

**TANNIC ACID ( $HC_{14}H_9O_9$ ).**

**SYNONYMS.**—Tannin, gallotannic acid, digallic acid.

**DESCRIPTION.**—Pale-yellowish amorphous masses, astringent taste, no odor, and an acid reaction. Soluble in alcohol, water; and glycerin, and sparingly so in ether.

**PREPARATION.**—From powdered nutgalls by subjecting them to the action of ether and water; filtered and gently evaporated.







OFFICIAL PREPARATIONS.—Glyceritum Acidi Tannici, Unguentum Acidi Tannici, and Collodium Stypticum.

DOSE.—Same as gallic acid.

### ACONITUM FOLIA.

ACONITUM FOLIA (unofficial). Natural order, RANUNCULACEÆ. Habitat, in the mountainous regions of Europe, Northern Asia, and Western North America.

DESCRIPTION.—Leaves of *Aconitum Napellus*, having incised margins, sometimes deeply cut wedge-shaped segments, from 2 to 4 inches in diameter and about 4 to 6 inches in length. Odor at first resembling weak tobacco, and not unlike tea. Taste is at first bitter, then acrid, leaving a tingling sensation in the mouth and throat, due to paralysis of the nerve-endings.

THERAPEUTIC ACTION.—Same as the root.

### ACONITUM RADIX.

DESCRIPTION.—A tuber, conical in shape,  $\frac{3}{4}$  inch in thickness at the top. The tuber grows from 2 to 2  $\frac{1}{2}$  inches long, and is covered with little points from which grew the rootlets. Dark brown externally, light brown internally, of horny texture, and made up largely of starchy material. At first a sweetish taste, becoming acrid; last a burning, accompanied by a tingling sensation, like that from the leaves. Bark rather thick.

OFFICIAL PREPARATIONS.—Extractum Aconiti, Extractum Aconiti Fluidum, and Tinctura Aconiti. The tincture is generally used.

ACTIVE PRINCIPLE.—Aconitine: a white, amorphous, very poisonous solid alkaloid, which may be given hypodermically or by the mouth.

THERAPEUTIC ACTION.—Sedative, anodyne, and strong heart depressant, the action being directed principally to the heart.

TOXICOLOGY.—Burning, tingling sensation of mouth and throat, pulse becoming very slow and weak; convulsions, muscu-

lar weakness, loss of sensation, then loss of motion; cold sweats, eyes protruding and glaring, respirations irregular and shallow, collapse, and death. Symptoms the same in animal and man.

ANTIDOTE.—No regular antidote known. At the start use the stomach-pump. Cardiac stimulants, ammonia, hypodermics of digitalis, and alcohol are useful. If there is danger of failure of respiration, stimulate that. As there is paralysis of the nerve-endings, emetics are useless. It acts on the sensory nerve-endings first, and kills by asphyxia. In poisoning by alkaloids or other vegetable preparations tannic acid should always be given.

DOSE.—*Tincture*.—Adult, 0.03 to 0.3 c. c. (*mss* to *mv*). Horse, 0.3 to 2.6 c. c. (*mv* to *mxl*). Cattle, 2.0 to 4.0 c. c. (*f3ss* to *f3j*). Dog, 0.03 to 0.3 c. c. (*mss* to *mv*). Do not give over two or three full doses, as the action will finally occur.

NOTE.—Horses are very susceptible to the action of aconite.

### ADEPS.

LARD. Sp. gr., 0.938.

DESCRIPTION.—Prepared from the fat of *Sus scrofa*; class, Mammalia; order, Pachydermata. To be official must be from the kidneys and omentum; this is called "Leaf Lard." It is purified by melting in water and straining. Soft, white, odorless, fatty substance, melting at 100° F. Should be free from all rancid odor and all foreign substances. Composed of 62 parts of olein and 38 parts of stearin.

THERAPEUTIC ACTION.—Emollient, and, like all animal fats, absorbed by animal tissue sooner than mineral or vegetable fats. It is preferred as a base for ointments.

### ADEPS LANÆ HYDROSUS.

LANOLIN.

DESCRIPTION.—Fat from wool of *Ovis aries*; class, Mammalia; order, Ruminantia. Composed largely of cholesterin, and is free from irritating properties. Wool contains 45 per





cent. of lanolin. Yellow, and of the consistency of lard. The glycerin in this fat is displaced by cholesterin. Melts at 40° C.

PREPARATION.—Prepared by boiling wool with water.

THERAPEUTIC ACTION.—Emollient and readily absorbed.

### ÆTHERIS.

ETHER ( $[C_2H_5]_2O$ ). Sometimes wrongly termed “sulphuric ether.”

DESCRIPTION.—Ether is a liquid composed of about 74 per cent., by weight, of absolute ethyl oxide and about 26 per cent. of alcohol, and contains a little water (U. S. P.). It is a colorless, transparent, mobile liquid, very inflammable and very volatile. It has a peculiar penetrating, characteristic odor. The specific gravity is from 0.735 to 0.750. Ether belongs to the fatty series of the carbon compounds. The taste is burning and sweetish, not so sweet as chloroform. It should evaporate without leaving any residue. Ether boils at 37° C. Only slightly soluble in water, but will mix in all proportions with chloroform, benzine, alcohol, and the fixed and volatile oils. The vapor of ether, if mixed with air, will explode if ignited. Ether should be kept in well-corked bottles, or, better, in tin cans, which should be sealed. There is official in the pharmacopœia a preparation under the name of *æther fortior*, or stronger ether; this differs from the former only in the amount of ethyl oxide it contains, having 94 per cent. of the latter, with a very small proportion of alcohol and water. The specific gravity of stronger ether is from 0.716 to 0.725.

PREPARATION.—There is no official method given by the last edition of the pharmacopœia for the preparation of ether. The English method is as follows: “Take of rectified spirits 50 fluidounces (imperial measure); sulphuric acid, 10 fluidounces (imperial measure); chloride of calcium, 10 ounces (avoirdupois); slaked lime,  $\frac{1}{2}$  ounce (avoirdupois); distilled water, 13 fluidounces (imperial measure). Mix the sulphuric acid with 12 fluidounces of the spirit in a glass flask having a wide neck and capable of containing at least 2 pints (imperial measure)

and, not allowing the mixture to cool, connect the flask by means of a bent glass tube with a Liebig condenser, and distill at a temperature sufficient to maintain the liquid in brisk ebullition. As soon as the ethereal fluid begins to pass over, supply fresh spirit through a tube in the flask in a continuous stream and in such quantity as to equal the volume of the fluid which distills over. For this purpose use a tube furnished with a stop-cock to regulate the supply, connecting one end of the tube with a vessel containing the spirit raised above the level of the flask and passing the other end into the acid fluid through a cork fitted into the flask. When the whole of the spirit has been added and 42 fluidounces have distilled over, the process may be stopped. Dissolve the chloride of calcium in the water, add the lime, and agitate the mixture in a bottle with the impure ether. Leave the mixture at rest for ten minutes, pour off the light, supernatant fluid, and distill it until a glass bead of the specific gravity 0.735, placed in the receiver, begins to float. The ether and spirit retained by the chloride of calcium and by the residue of each rectification may be recovered by distillation and used in a subsequent operation." (Br.)

OFFICIAL PREPARATIONS.—*Spiritus Ætheris* and *Spiritus Ætheris Compositus*.

THERAPEUTIC ACTION.—Anæsthetic, carminative, antispasmodic, and stimulant.

DOSE.—Adult, 2.0 to 4.0 c. c. (*mxx* to *mxl*). Horse, 30.0 to 60.0 c. c. (*f3j* to *f3ij*). Cattle, 60.0 to 90.0 c. c. (*f3ij* to *f3iij*). Sheep, 7.5 to 15.0 c. c. (*f3 1/4* to *f3 1/2*). Dog, 1.875 to 3.75 c. c. (*mxxviii* to *mlvj*).

The lethal dose differs in different animals of the same species, the amount varying from 20.0 to 40.0 c. c. (*f3v* to *f3x*) for the smaller animals.

### ALCOHOLIS.

ALCOHOL. Sp. gr., 0.835. Contains 9 per cent. of water.

SYNONYMS.—Rectified spirits, spirits of wine; chemically, hydrated oxide of ethyl.







**DESCRIPTION.**—A liquid composed of 91 per cent. of ethyl alcohol ( $C_2H_5OH$ ), by weight, and 9 per cent. of water. Transparent mobile liquid, of sweetish, burning taste and not unpleasant odor. Highly inflammable, and boils at  $174.4^\circ$  F. Alcohol prevents destruction of the tissues.

**OFFICIAL PREPARATIONS.**—All Tinctures, Fluid Extracts, some Ointments, and Solid Extracts.

**THERAPEUTIC ACTION.**—Stimulant, chiefly cardiac. Nutrient. It is a poison, with the same effect on horse and man.

**TOXICOLOGY.**—Brain fails first; heart and respiration last. The four stages of the poisoning are: 1. Stimulation. 2. Narcotization. 3. Anæsthesia. 4. Paralysis.

**ANTIDOTES.**—Stomach-pump; hot douches, followed at once by cold; hypodermics of strychnine.

**DOSE.**—Horse, 30.0 c. c. ( $f\bar{3}j$ ). Cattle, 30.0 to 90.0 c. c. ( $f\bar{3}j$  to  $f\bar{3}ij$ ). Dog, 3.75 to 7.5 ( $f\bar{3}j$  to  $f\bar{5}ij$ ).

#### **Alcoholis Absolutum.**

ABSOLUTE ALCOHOL, *Stronger Alcohol*. Sp. gr., 0.769.

#### **Alcoholis Dilutum.**

DILUTED ALCOHOL. Sp. gr., 0.941.

SYNONYM.—Proof spirits.

**PREPARATION.**—A solution composed of equal parts, by weight, of ethyl alcohol and water.

These three forms of alcohol differ only in the amount of pure ethyl alcohol they contain.

#### **Alcoholis Amylum.**

FUSEL OIL ( $C_{10}H_{12}O_2$ ). Sp. gr., 0.818. Found in all crude whisky. It is the poisonous part of whisky.

**DESCRIPTION.**—Characterized by a very offensive, penetrating odor; oily and colorless. Taste, burning and acrid. Boils at  $269^\circ$  F. Freezes at  $-40^\circ$  F. Only sparingly soluble in water, but mixes with alcohol, ether, or the oils. It has a local stimulating action.

**Alcoholis Methylicum.**

WOOD ALCOHOL ( $\text{CH}_3\text{HO}$ ). Sp. gr., 0.799.

DESCRIPTION.—Highly inflammable, burning with a pale, but very hot, flame. Boils at  $140^\circ$  F. Peculiar penetrating odor, depending upon the oily matter contained. Canary color.

PREPARATION.—Prepared from the destructive distillation of wood, and now in large quantities from the remains of beets after making beet-sugar.

**Alcoholic Liquors.**

All fermented or brewed liquors depend, principally, on the ethyl alcohol they contain for their therapeutic actions. The most common are:—

SPIRITUS JUNIPERI (GIN).—Made by distilling fermented malt and juniper-berries. Contains 50 to 60 per cent. of alcohol. Has a special diuretic action.

RUM.—Fermented solution of molasses. Should contain 53 per cent. of alcohol.

SPIRITUS FRUMENTI (WHISKY).—By fermenting any of the cereals and distilling. Should contain 45 per cent. of alcohol.

SPIRITUS VINI GALlici (BRANDY).—Distilling weak wines or fermented grape-juice and subjecting pomace from the wine-press to fermentation and distilling. Contains 45 to 55 per cent. of alcohol. Has an astringent action.

WINE.—Fermenting the juice of grapes. Claret (vinum rubrum), contains 9 to 18 per cent.; port (vinum Portense), 17 to 26 per cent.; sherry (vinum xericum), 17 per cent.; madeira (vinum Madeiræ), 19 to 25 per cent. of alcohol.

ALE, PORTER, AND BEER.—Infusing malt in water at  $180^\circ$  F., standing for a few hours until the starch is converted into grape-sugar, then boiled with hops, yeast added, and put into kegs. Color dark, if the malt is first roasted. Porter and stout contain  $6\frac{1}{2}$  to 7 per cent.; ale, 6 to 12 per cent.; beer, 5 to 8 per cent. of alcohol.





**ALOE.**

Three varieties: *Aloe Barbadosis*, *Aloe Socotrina*, and *Aloe Capensis*. The Cape is the dried juice of *Aloe spicata* and other species of aloe. Socotrine aloes is the dried juice of *Aloe Perryi*. The action of all three is the same, differing only in intensity. Socotrine is used in human medicine; Barbados and Cape aloes are used in veterinary, and are from 10 to 15 per cent. stronger than the Socotrine variety.

**Aloe Barbadosis.**

Natural order, LILIACEÆ. Habitat, Barbados.

DESCRIPTION.—This is the concrete juice of *Aloe vera*, and consists of deep-orange-brown masses, and before exposure is opaque and has a bitter, nauseous taste. Yields a large percentage of extractive matter. Odor strong.

PREPARATION.—The juice is extracted from the plant by making incisions into the tree. It is then boiled and poured into gourds or bladders to cool and harden.

OFFICIAL PREPARATION.—Extractum Aloes Purificata.

ACTIVE PRINCIPLE.—Aloin, the active principle, possesses all the therapeutic action of the crude drug in a concentrated degree.

THERAPEUTIC ACTION.—Laxative, cathartic, and stomachic.

DOSE.—Adult, 0.03 to 0.6 gm. (gr. ss to gr. x). Horse, 12.0 to 48.0 gm. (ʒiij to ʒiiss). Cattle, 32.0 to 64.0 gm. (ʒj to ʒij). Dog, 1.3 to 4.0 gm. (gr. xx to ʒj).

**ALUMEN.**

ALUM ( $\text{Al}_2\text{K}_2[\text{SO}_4]_4$ ). Sp. gr., 1.71. Contains 24 parts of water of crystallization.

DESCRIPTION.—Double salt of sulphate of aluminium and potassium. Occurs in large, colorless, octahedral crystals. Odorless; has a sweet, astringent taste and an acid reaction. A

heat of 212° F. drives off the water of crystallization, and a dry, crusty mass remains which may be reduced to a gritty powder by trituration (*alumen exsiccatum*). Dissolves in 9 parts of cold water or in three-fourths its weight of boiling water. Precipitates albumin and gelatin. No action on epidermis, but when applied to abraded surfaces causes a coating of albumin to be formed. Found on the surface of the soil and rocks in volcanic regions, and largely prepared from aluminous clay, which consists principally of silicate of aluminium and iron sulphide.

PREPARATION.—The clay is roasted and the sulphur forms sulphuric acid. This combines with the iron and aluminium, and forms sulphate of iron and aluminium. Chloride of potassium is then added and a double decomposition takes place. The potash combines with the aluminium and the sulphur; then the chlorine and the iron form chloride of iron. The crude salt is purified by solution, filtration, and crystallization.

OFFICIAL PREPARATION.—*Alumen Exsiccatum*.

THERAPEUTIC ACTION.—Astringent and emetic.

DOSE.—Adult, 0.3 to 3.0 gm. (gr. v to gr. xlv). Horse, 8.0 to 16.0 gm. (ʒij to ʒiv). Cattle, 16.0 to 20.0 gm. (ʒiv to ʒv). Dog, 0.66 to 2.0 gm. (gr. x to gr. xxx).

## AMMONIA.

AMMONIA ( $\text{NH}_3$ ). Sp. gr., 0.59. All ammonia compounds depend on the gaseous substance *ammonia*.

DESCRIPTION.—This gas is transparent and colorless; has a sharp taste and an extremely pungent odor. Strongly alkaline, and changes vegetable reds to blue. Found in the air, rain-water, and in small quantities in snow.

PREPARATION.—It is prepared by the action of lime upon muriate of ammonia.

TOXICOLOGY.—Ammonia, when inhaled in purity, causes an almost immediate spasm of the glottis.

ANTIDOTE.—Remove the cause and supply fresh air immediately.







**Ammonii Carbonas.****CARBONATE OF AMMONIUM.**

**DESCRIPTION.**—Is a sesquicarbonate. White, hard, translucent masses, of crystalline appearance, but not a true crystal; it is a sublimate. Sharp, alkaline taste; powerful, penetrating odor, and a strongly alkaline reaction. When exposed to the air it becomes a white, opaque powder, the outside, or efflorescent, portion being bicarbonate of ammonium. Soluble in four times its weight of water. Sometimes prepared from putrid urine or guano or by subliming chloride of ammonia and chalk together.

**OFFICIAL PREPARATIONS.**—Liquor Ammoniae Acetatis and Spiritus Ammoniae Aromaticus.

**THERAPEUTIC ACTION.**—Stimulant, diaphoretic, antispasmodic, powerful irritant, strong antacid, and one of the best cardiac stimulants.

**DOSE.**—Adult, 0.13 to 0.65 gm. (gr. ij to gr. x). Horse, 8.0 to 16.0 gm. (3ij to 3iv). Cattle, 12.0 to 24.0 gm. (3iij to 3vj). Dog, 0.2 to 0.6 gm. (gr. iij to gr. ix). Given to the lower animals in bolus with flaxseedmeal or in broth or flaxseed-tea.

**Ammonii Chloridum.**

**CHLORIDE OF AMMONIUM ( $\text{NH}_4\text{Cl}$ ).** Sp. gr., 1.45.

**DESCRIPTION.**—White, translucent, tough, fibrous salt, in cakes two inches thick, with a pungent, salty taste, but no odor. Soluble in 3 parts of cold water and 1 part of boiling water. Can only be powdered by dissolving it in boiling water, stirring until cold, and triturating. The hard salt can never be powdered. It increases the solubility of corrosive sublimate in water. Heat entirely volatilizes it. Has no odor of ammonia. In medicine the granular form is usually employed.

**PREPARATION.**—From the refuse liquor from the gasworks. First discovered in camels' dung, and from this the carbonate was obtained.

**THERAPEUTIC ACTION.**—Differs in size of doses. Large doses are stimulant and purgative; small doses constipate. It is a general stimulant and local refrigerant.

**DOSE.**—Same as the carbonate, and may be given in concentrated form.

### **Aqua Ammoniae Fortior.**

**STRONGER WATER OF AMMONIA.** Sp. gr., 0.9.

**DESCRIPTION.**—Aqueous solution of ammonia-gas, perfectly colorless, with characteristic odor of ammonia. Strong alkaline reaction. When cooled to  $-40^{\circ}$  F. it solidifies. Boils at  $130^{\circ}$  F.

**PREPARATION.**—By distilling a mixture of ammonium chloride and air-slaked lime, and the gas collected in distilled water. Ammonia of commerce is distilled from liquor from the gasworks, which is a solution of several salts of ammonia, but principally the carbonate. At one time it was very costly, and was originally made from camels' dung.

**OFFICIAL PREPARATION.**—Spiritus Ammoniae.

**THERAPEUTIC ACTION.**—Rubefacient, vesicant, and escharotic. Never used internally.

**TOXICOLOGY.**—Violent, corrosive poison, causing spasm of the glottis. After swallowing it causes intense pain, vomiting, convulsions, collapse, and death.

**ANTIDOTES.**—Tracheotomy; then use vinegar, to neutralize; olive-oil, soap, and milk.

### **AMYL NITRIS.**

**AMYL NITRITE.**—Sp. gr., 0.877.

**DESCRIPTION.**—Straw-colored, volatile liquid. Odor like pears. Insoluble in water; soluble in alcohol, ether, chloroform, and oils.

**PREPARATION.**—By passing nitric acid gas through amylic alcohol (*fusel oil*) until saturated, or by treating amylic alcohol with nitric acid and distilling. Volatilizes at  $95^{\circ}$  to  $98^{\circ}$  C. It decomposes; so must be kept in tightly stoppered bottles.





**THERAPEUTIC ACTION.**—Antispasmodic, diuretic, and diaphoretic. Inhaled, given per mouth, or subcutaneously it causes marked reduction in blood-pressure, but quickened pulse. Paralyzes motor side of cord. Death by paralysis of motor centers in medulla (asphyxia). Causes blood to assume a chocolate color, due to formation of methæmoglobin. No action on voluntary, but paralyzes involuntary muscles like atropine. Increases secretion of skin and kidneys, and also causes appearance of sugar in the urine.

**ANTIDOTES.** — General and cardiac stimulation, artificial respiration, and fresh air.

**DOSE.**—*Inhalation.*—Adult, 0.05 to 0.3 c. c. (*mss* to *mv*). Horse, 2.0 to 4.0 c. c. (*f3ss* to *f3j*). Dog, 0.12 to 0.3 c. c. (*mij* to *mv*). Bird, 0.03 to 0.1 c. c. (*mss* to *miss*).

*Oral.*—Adult, 0.05 to 0.2 c. c. (*mj* to *mij*). Horse, 0.12 to 1.0 c. c. (*mij* to *mxv*). Dog, 0.03 to 0.12 c. c. (*mss* to *mij*). Hypodermic dose, one-half the above.

### ANTHEMIS.

**CHAMOMILE**, English or Roman Chamomile. Natural order, COMPOSITÆ. Habitat, Europe.

**DESCRIPTION.**—Dried flowers of *Anthemis nobilis*, three-fourths of an inch across, round, and with numerous white florets on a round receptacle, or head. Aromatic odor and bitter taste. If dried quickly, retains the creamy-white color. Contains a volatile oil, a bitter principle, and some tannin.

**THERAPEUTIC ACTION.**—Mild stimulant, aromatic, stomachic, and tonic.

**DOSE.**—*Infusion.*—Adult, 10.0 to 15.0 c. c. (*f3iiss* to *f3iv*). Horse, 30.0 to 60.0 c. c. (*f3j* to *f3ij*).

### ANTIFEBRINUM.

#### ANTIFEBRIN.

**DESCRIPTION.**—This patented preparation is identical with acetanilid and has no advantages over the latter. It is in the

form of small, white, micalike, crystalline plates or in a fine crystalline powder; taste is slightly burning and woody; odorless. It is a permanent salt, soluble in alcohol and chloroform, and in water, 1 part to 200. Antifebrin is used extensively on the human family, while acetanilid is more applicable to treatment of the lower animals, on account of the lower price of acetanilid.

**PREPARATION.**—Antifebrin is prepared in the same manner and from the same substances as acetanilid, which see.

**THERAPEUTIC ACTION and DOSES** are the same as given under "Acetanilid."

### ANTIMONII ET POTASSII TARTRAS.

**ANTIMONY AND POTASSIUM TARTRATE**, Tartar Emetic, Tartarated Antimony ( $2K[SbO]C_4H_4O_6 + H_2O$ ).

**DESCRIPTION.**—Colorless, transparent, rhombic crystals. They become opaque on exposure to the air. That in the shops is in the form of a heavy, white, granular powder, odorless and having at first a sweet and later a disagreeable metallic taste. Soluble in 17 parts of cold and 3 parts of boiling water. Insoluble in alcohol. It has a slight acid reaction when in aqueous solution. Eliminated by bowels, kidneys, bronchial mucous membrane, etc.

**PREPARATION.**—This salt is produced by the decomposition of oxide of antimony and bitartrate of potassium when mixed in aqueous solution, the change being facilitated by boiling the mixed solutions.

**OFFICIAL PREPARATIONS.**—Syrupus Scillæ Compositus and Vinum Antimonii.

**THERAPEUTIC ACTION.**—Emetic, cardiac depressant, expectorant; externally, irritant and vesicant.

**DOSE.**—Adult, diaphoretic, 0.003 to 0.006 gm. (gr.  $\frac{1}{20}$  to gr.  $\frac{1}{10}$ ); emetic, 0.03 to 0.06 gm. (gr. ss to gr. j). Horse, expectorant and diaphoretic, 8.0 to 15.0 gm. (3ij to 3iv). Dog, diaphoretic and expectorant, 0.006 to 0.03 gm. (gr.  $\frac{1}{10}$  to gr.  $\frac{1}{2}$ ); emetic, 0.06 to 0.12 gm. (gr. j to gr. ij).







**ANTIMONII SULPHURETUM.**

**ANTIMONY SULPHURET.** Black antimony ( $\text{Sb}_2\text{S}_3$ ).

**DESCRIPTION.**—Obtained in France and Germany. Conical masses; dark gray externally; when broken shows a glittering steel-gray fracture. The pulverized drug is a dull black or red-dish-brown powder. Insoluble in water.

**PREPARATION.**—Native sulphuret of antimony, melted and run through tubes into pots outside the furnace.

**THERAPEUTIC ACTION.**—Uncertain in its action. Depressant and cathartic.

**DOSE.**—Horse and cattle, 4.0 to 12.0 gm. (3j to 3iij).

**ANTIPYRINUM.**

**ANTIPYRIN** ( $\text{C}_6\text{H}_5[\text{CH}_3]_2\text{C}_3\text{HN}_2\text{O}$ ), Phenyl-dimethyl-parazalone.

**DESCRIPTION.**—White, scalelike crystals, odorless, having a bitter taste and an alkaline reaction. Antipyrin is soluble in water, alcohol, and chloroform. It is incompatible with spirit of nitrous ether, iron sulphate, the chlorides, iodides, salicylates, tannic acid, chloral, calomel, and many other drugs.

**PREPARATION.**—Antipyrin is prepared by the action of aceto-acetic ether on phenyl-hydrazin. This is also a patented substance, prepared in Germany.

**THERAPEUTIC ACTION.**—Antiseptic, cardiac depressant (large doses), antipyretic, and analgesic.

**TOXICOLOGY AND ANTIDOTES.**—This preparation, like acetanilid, shows the same line of symptoms in poisoning as any of the heart depressants. The most pronounced symptoms are sweating, fall of temperature, loss of consciousness, muscular weakness, and general paralysis. The treatment given is the subcutaneous injection of cardiac stimulants, such as strychnine, atropine, nitroglycerin, etc., and the application of external heat, with the general administration of alcohol.

DOSE.—Adult, 0.3 to 1.3 gm. (gr. v to gr. xx). Horse, 12.0 to 15.0 gm. (3iij to 3iv). Dogs and other small animals, 0.06 to 0.12 gm. (gr. j to gr. ij).

### APOMORPHINÆ.

APOMORPHIA ( $C_{17}H_{17}NO_2$ ). An artificial alkaloid prepared from morphine or codeine.

DESCRIPTION.—The *hydrochlorate* of *apomorphina* is the salt of this alkaloid that is chiefly used in medicine. This salt occurs in minute grayish-white, shining, acicular crystals having a slightly bitter taste; inodorous. Light and air cause the crystals to assume a greenish color. Soluble in 45 parts of water or alcohol. Freely soluble in ether or chloroform. Neutral in reaction.

THERAPEUTIC ACTION.—Emetic (should be administered hypodermically in narcotic poisoning) and expectorant.

DOSE.—Adult, oral, 0.014 gm. (gr.  $\frac{1}{6}$ ); hypodermic, 0.003 gm. (gr.  $\frac{1}{20}$ ). Horse, oral, 0.065 gm. (gr. j); hypodermic, 0.03 gm. (gr.  $\frac{1}{2}$ ). Dog and cat, 0.0015 gm. (gr.  $\frac{1}{40}$ ).

### ARECA.

BETEL-NUT. Natural order, PALMACEÆ. Habitat, East Indies.

DESCRIPTION.—Fruit of *Areca catechu* (Palms), called "dog-nuts." Roundish, conical, 1 inch long,  $\frac{1}{2}$  to  $\frac{3}{4}$  inch in diameter, flat at large end, and has a concavity around the stem. Externally light brown; internally mottled. Astringent taste and not unpleasant odor.

THERAPEUTIC ACTION.—Tænicide and vermifuge for dogs. Large doses of freshly grated drug given on an empty stomach have a good effect.

DOSE.—Horse, 16.0 to 24.0 gm. (3iv to 3vi). Dog, 1.0 to 8.0 gm. (gr. xv to 3ij).





**ARGENTUM.**

SILVER (Ag). Sp. gr., 10.55.

DESCRIPTION.—In purity has a white lustre. Plastic; pure air does not tarnish; tarnished by sulphur. It is the best conductor of heat and electricity. Fuses at  $954^{\circ}$  C. Volatilizes at full red heat. Found mixed with copper and lead.

**Argenti Nitras.**

NITRATE OF SILVER ( $\text{AgNO}_3$ ).

DESCRIPTION.—The crystals of nitrate of silver are beautiful, colorless, and tabular; rhombic in shape; freely soluble in water, and in 4 parts of alcohol. Taste is styptic, metallic, and corrosive. Coagulates albumin, and acts as caustic upon animal tissue, forming at first a white film, which afterward turns black, forming black oxide of silver. With any chloride in solution it forms an insoluble chloride of silver. Must be kept in dark to prevent oxidation.

PREPARATION.—By treating metallic silver with strong nitric acid, the silver being dissolved, and the fumes of nitrous acid evolved in the form of red vapors. Then filtered and concentrated.

DOSE.—Adult, 0.01 to 0.06 gm. (gr.  $\frac{1}{6}$  to gr. j). Horse and cattle, 0.13 to 0.33 gm. (gr. ij to gr. v). Dog, 0.008 to 0.03 gm. (gr.  $\frac{1}{8}$  to gr.  $\frac{1}{2}$ ). Internally in form of pill.

**Argenti Nitras Fusus.**

FUSED NITRATE OF SILVER, Lunar Caustic.

DESCRIPTION.—Fused nitrate of silver is in white, hard cylinders, brittle, and breaks with a shining, irregular fracture. Has all the characteristics of the crystals.

PREPARATION.—By fusing the crystals of nitrate of silver and pouring them into molds. A tougher caustic is made by mixing 30 parts of silver with 60 parts of nitrate of potassium,

and is called *argenti nitras fusus dilutum*, which is whiter in color and but one-third the strength of lunar caustic.

THERAPEUTIC ACTION.—Astringent and caustic. Used externally only.

### Argenti Oxidum.

OXIDE OF SILVER ( $\text{Ag}_2\text{O}$ ).

DESCRIPTION.—It is an olive-brown powder. Every 29 parts of oxide contains 27 parts of metallic silver. Almost universally incompatible. Slightly soluble in water. Soluble in nitric acid.

PREPARATION.—Prepared by oxidation of silver nitrate by caustic potash.

THERAPEUTIC ACTION.—Astringent. Same action as nitrate except that it has no pronounced caustic action.

DOSE.—Adult, 0.03 to 0.12 gm. (gr. ss to gr. ij). Horse, 0.2 to 0.53 gm. (gr. iij to gr. viij). Sheep, 0.07 to 0.13 gm. (gr. j to gr. ij). Dog, 0.008 to 0.3 gm. (gr.  $\frac{1}{8}$  to gr. ivss). Always given in pill form.

### ARNICÆ FLORES.

ARNICA FLOWERS. Natural order, COMPOSITÆ. Habitat, Europe, Siberia, and Northwestern United States.

DESCRIPTION.—Flowers of *Arnica montana*, 1 inch in diameter, yellowish brown, round, with a depression in the centre. Have a hairy appearance; feeble, aromatic odor; and an acrid, bitter taste. Contain a trace of volatile oil. When snuffed cause violent sneezing.

OFFICIAL PREPARATION.—Tinctura Arnicæ Flores.

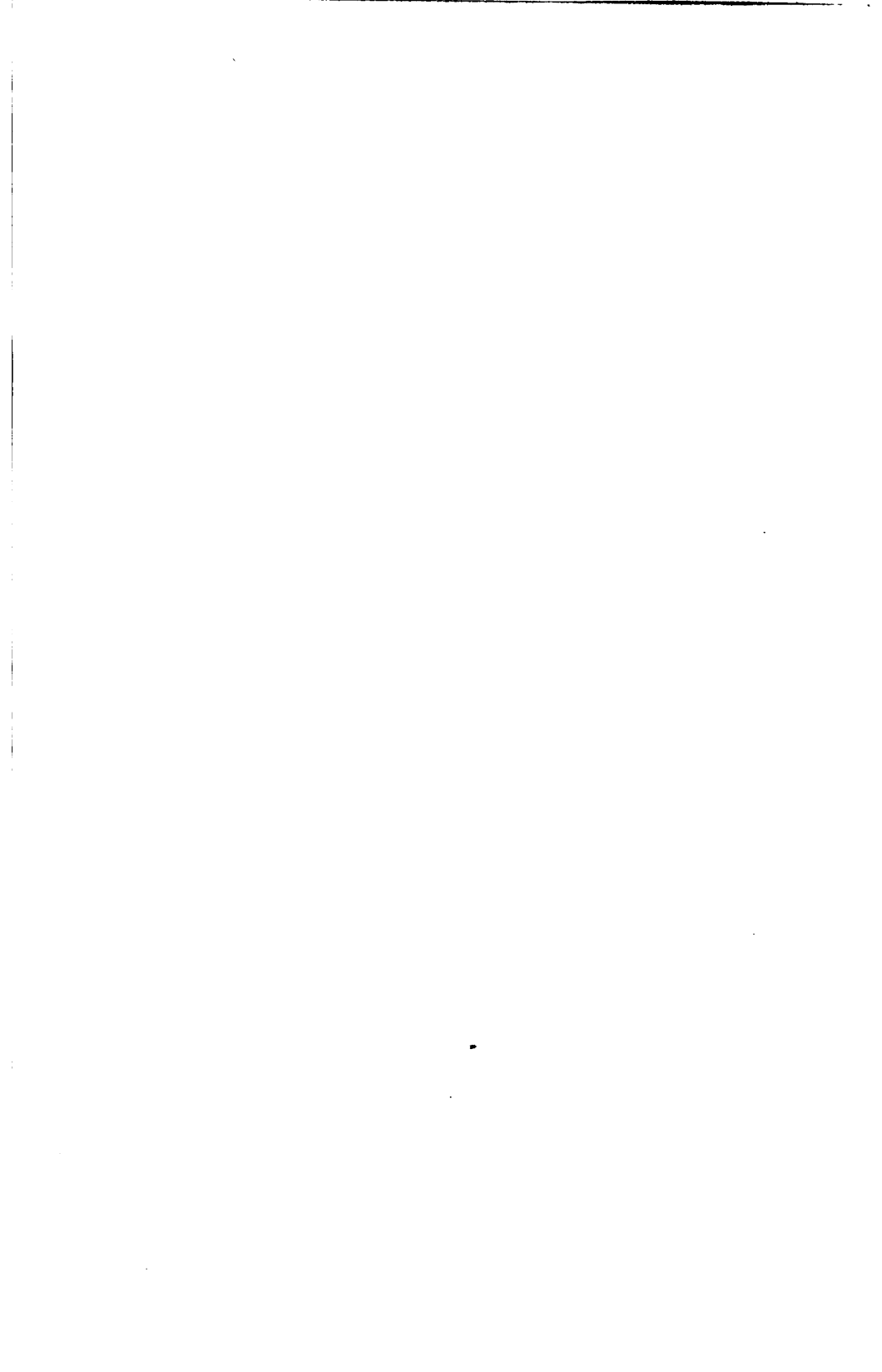
ACTIVE PRINCIPLE.—Arnicine.

THERAPEUTIC ACTION.—Stimulant.

### ARNICÆ RADIX.

ARNICA-ROOT.

DESCRIPTION.—The rhizome and rootlets of *Arnica montana*. Woody and brownish, from 1 to 3 inches in length, with







little rootlets. The odor is aromatic and the taste is aromatic and bitter.

OFFICIAL PREPARATIONS. — *Tinctura Arnicæ Radicis*, *Extractum Arnicæ Radicis*, and *Extractum Arnicæ Radicis Fluidum*.

THERAPEUTIC ACTION.—Same as flowers, but one-third stronger.

DOSE. — *Tincture*. — Adult, 7.5 to 15.0 c. c. (f3ij to f3iv). Horse, 15.0 to 45.0 c. c. (f3ss to f3iss). Cattle, double the dose for the horse. Dog, 0.33 to 0.66 c. c. (mv to mx).

### ASAFÆTIDA.

ASAFETIDA. Natural order, UMBELLIFERÆ. Sp. gr., 1.327. Habitat, Persia and Afghanistan.

DESCRIPTION.—Gum resin. An exudation, from the root of *Ferula fetida*, in irregular masses, soft when fresh, which harden on exposure to the air, and change from a yellowish to a reddish-brown color, and is mottled, the red being the gum, and the whiter portion being the resin. Odor like garlic or onions, and taste bitter, acrid, and durable. Softens by heat and is difficult to pulverize.

PREPARATION.—When the leaves fall, the earth is scraped away from the roots, the tops are twisted off and laid over roots, then the summit is cut off and the juice removed as it exudes and hardens. Then another slice, etc. Dried in the sun and exported.

OFFICIAL PREPARATIONS.—*Emulsum Asafœtidæ* and *Tinctura Asafœtidæ*.

THERAPEUTIC ACTION.—Stimulant, carminative, expectorant, and antispasmodic.

DOSE.—Adult, gum, 0.3 to 1.0 gm. (gr. v to gr. xv); tincture, 2.0 to 4.0 c. c. (f3ss to f3j). Horse, gum, 8.0 to 16.0 gm. (3ij to 3iv); tincture, 30.0 to 90.0 c. c. (f3j to f3iij). Cattle, gum, 32.0 gm. (3viiij); tincture, 180.0 to 240.0 c. c. (f3vj to f3viiij). Dog, gum, 0.66 to 1.33 gm. (gr. x to gr. xx); tincture, 5.0 to 10.0 c. c. (mlxxv to f3iiss).

**ASPIDIUM.**

ASPIDIUM, Male Fern. Formerly Filix Mass. Natural order, FILICES. Habitat, Northern Hemisphere.

DESCRIPTION.—Rhizome and part of the rootlets of *Dryopteris marginalis*. Stipes, or rootlets, are inert. From 3 to 6 inches in length, from  $\frac{3}{8}$  to 1 inch in diameter, and covered with brown scales, or stipes. Internally, pale green. Bitter, astringent taste.

OFFICIAL PREPARATION.—Oleoresina Aspidii.

THERAPEUTIC ACTION.—Tænicide.

DOSE.—*Oleoresin*.—Adult, 2.0 to 4.0 c. c. (mxxx to f3j). Horse, 7.5 to 15.0 c. c. (f3ij to f3iv). Dog, 0.66 to 3.0 c. c. (mx to mxlv). Sheep, the same as that for the dog. Capsule, pill, or drench. Followed by a purge of oil of turpentine and castor-oil.

**AURANTII AMARI CORTEX.**

BITTER ORANGE-PEEL. Natural order, AURANTIACEÆ. Habitat, Northern India (cultivated in subtropical countries).

DESCRIPTION.—The rind of the fruit of *Citrus vulgaris*. It is of a dark brownish-green color, odor is fragrant, taste is aromatic and bitter. The external surface has a glandlike appearance, while the internal face is of a soft, spongy nature and creamy white in color. The outside of the rind is covered with small cells containing an aromatic, *volatile oil*. Besides this oil the rind contains a principle called *hesperidin*. Alcohol and water extract the principles.

OFFICIAL PREPARATIONS.—Extractum Aurantii Amari Fluidum and Tinctura Aurantii Amari.

THERAPEUTIC ACTION.—Stimulant, carminative, tonic, and stomachic. The preparations of bitter orange-peel are used principally for flavoring and as vehicles and the oil in perfumes.

DOSE.—Adult, 1.0 to 2.0 c. c. (mxv to mxxx) of tincture. Horse, 5.0 to 10.0 gm. (gr. lxxv to 3iiss). Dog and cat, 1.0 to 2.0 gm. (gr. xv to 3ss).





**BELLADONNÆ FOLIA.**

**BELLADONNA-LEAVES.** Natural order, SOLANACEÆ. Habitat, Europe.

**SYNONYM.**—Deadly nightshade.

**DESCRIPTION.**—Leaves of *Atropa Belladonna*. Shape, ovate and broad. Length, 4 to 6 inches. Tapers at apex, and has an entire margin. Smooth and thin. Brownish green on upper surface, and light green on lower surface. Taste bitter and disagreeable. Peculiar narcotic odor.

**BELLADONNÆ RADIX.**

**BELLADONNA-ROOT.**

**DESCRIPTION.**—Cylindrical tapering pieces, having wrinkles running the length of the root, which is one and one-half inches thick, and of a fawn color externally and much lighter internally. Almost without odor. Taste at first sweetish, then bitter and acrid. Breaks with a smooth, mealy fracture. Bark is quite thick when young.

**OFFICIAL PREPARATIONS.**—*Leaves.*—Extractum Belladonnæ Foliorum Alcoholicum and Tinctura Belladonnæ Foliorum.

*Root.*—Extractum Belladonnæ Radicis Fluidum and Atropine.

**ACTIVE PRINCIPLE.**—Atropine.

**THERAPEUTIC ACTION.**—Antispasmodic, mydriatic, local sedative, analgesic, respiratory stimulant, and a peculiar action of arresting secretions.

**TOXICOLOGY.**—Narcotic poison.

**ANTIDOTES.**—Tannic acid, opium, and physostigma. Stomach-pump. Catheter.

**DOSE.**—*Leaves.*—Horses and cattle, 64.0 gm. (ʒij). Dog, 0.33 to 0.6 gm. (gr. v to gr. x).

*Extract.*—Adult, 0.008 to 0.03 gm. (gr.  $\frac{1}{8}$  to gr.  $\frac{1}{2}$ ). Horse, 1.0 to 2.0 gm. (gr. xv to gr. xxx). Dog, 0.008 to 0.03 gm. (gr.  $\frac{1}{8}$  to gr.  $\frac{1}{2}$ ).

*Atropine Sulphate*.—Adult, 0.0005 to 0.002 gm. (gr.  $\frac{1}{128}$  to gr.  $\frac{1}{32}$ ). Horse, 0.06 to 0.09 gm. (gr. j to gr. iss). Dog, 0.0005 to 0.002 gm. (gr.  $\frac{1}{20}$  to gr.  $\frac{1}{30}$ ).

### BENZOINUM.

**BENZOIN.** Natural order, STYRACEÆ. Sp. gr., 1.063 to 1.092. Habitat, Sumatra and Siam. Known also as “Gum Benjamin.”

**DESCRIPTION.**—A resinous balsam obtained from *Styrax benzoin*. Lumps of yellowish-brown tears imbedded in a brownish mass: When freshly broken the tears are white. Looks like asafetida, except that the tears are milky white and the mass is mottled more regularly. When heated it gives off fumes, which contain benzoic acid. Fragrant, balsamic odor, little or no taste; but when chewed irritates the throat. Breaks with a resinous fracture.

**PREPARATION.**—When the benzoin-tree is six years old and the trunk from seven to eight inches thick, incisions are made just below the branches, and the juice exudes and hardens on exposure.

**OFFICIAL PREPARATIONS.**—Adeps Benzoinatus, Tinctura Benzoini Composita, Tinctura Benzoini, and Acidum Benzoicum.

**THERAPEUTIC ACTION.**—Stimulant, expectorant, and local protective.

**DOSE.**—*Tincture*.—Adult, 2.0 to 4.0 c. c. (f3ss to f3j). Horse, 30.0 c. c. (f3j). Dog, 2.0 to 4.0 c. c. (f3ss to f3j).

### BISMUTHUM.

**BISMUTH (Bi).** Sp. gr., 9.83. Not official as a metal. Discovered in 1520, and now found in Saxony, Cornwall, and Bolivia, generally combined with nickel and cobalt.

**DESCRIPTION.**—Hard, brittle metal; shiny, crystalline fracture; and in reflected light a reddish tinge. Unites with other metals, and the combination is remarkable for its fusibility and the property of expanding on cooling.







**Bismuthi Subcarbonas.**

BISMUTH SUBCARBONATE ( $[\text{BiO}]_2\text{CO}_3$ ). Sp. gr., 4.

DESCRIPTION.—A white or a yellowish-white powder, insoluble in water, but soluble in nitric acid.

PREPARATION.—Always prepared by manufacturing chemists from bismuth, nitric acid, ammonia, sodium carbonate, and water. In the last part of the process the salt is obtained as a precipitate and dried.

THERAPEUTIC ACTION.—Astringent, with some sedative action.

DOSE.—Adult, 0.6 to 4.0 gm. (gr. x to 3j). Horse, 4.0 to 16.0 gm. (3j to 3iv). Dog, 0.2 to 0.66 gm. (gr. iij to gr. x).

**Bismuthi Subnitras.**

SUBNITRATE OF BISMUTH ( $\text{BiONO}_3$ ).

DESCRIPTION.—Heavy, pure white powder; saline taste; insoluble in water. Soluble in nitric acid. Incompatible with potassium iodide.

THERAPEUTIC ACTION.—Same as the subcarbonate, but much more astringent.

**BUCHU.**

Natural order, *RUTACEÆ*. Habitat, South Africa. Three kinds:—

*BAROSMA CRENULATA*, or short buchu; *BAROSMA SERRATIFOLIA*, or long buchu; and *BAROSMA BETULINA*, short. The leaves of the short varieties vary from an obovate to an oval form; from one to one and one-half inches in length. Edges serrated, pale green, darker on upper surface, aromatic odor and a pungent, bitter taste. Long buchu is from one and one-half to two inches long, thin, and lanceolate.

OFFICIAL PREPARATION.—*Extractum Buchu Fluidum*.

THERAPEUTIC ACTION.—All three the same. Diuretic, diaphoretic, and some expectorant and tonic properties.

**DOSE.**—*Fluid Extract.*—Adult, 1.3 to 3.0 c. c. (*mxx* to *mxlv*). Horse, 32.0 to 128.0 c. c. (*f̄ij* to *f̄iiv*). Dog, 0.3 to 2.0 c. c. (*mv* to *mxxx*).

### CAFFEA.

**COFFEE.** Habitat, Central Africa and Arabia. Natural order, RUBIACEÆ.

**DESCRIPTION.**—Seeds of *Coffea Arabica*. From small trees, three to five feet in height, bearing seeds, which are surrounded by a parchmentlike tegmen. Starts to yield when three or four years old, and gives two harvests a year for from thirty to forty years. Decoction of coffee is an excellent stimulant and tonic for animals convalescing from any debilitating disease.

### CAFFEINA.

#### CAFFEINE.

**DESCRIPTION.**—An alkaloid obtained principally from unroasted seeds of *Coffea Arabica*. It is in the form of long, silky, needle-shaped crystals which are odorless and have a peculiar, not unpleasantly bitter taste. With the acids it combines to form salts. Caffeine is only sparingly soluble in water; the salts are, however, freely soluble in this menstruum.

**THERAPEUTIC ACTION.**—General stimulant, acting alike on the brain, heart, respiration, and kidneys.

**DOSE.**—Adult, 0.26 to 1.3 gm. (gr. iv to gr. xx). Horse, 0.6 to 2.66 gm. (gr. x to gr. xl). Dog and cat, 0.13 to 0.65 gm. (gr. ij to gr. x).

### CAMBOGIA.

**GAMBOGE.** Natural order, GUTTIFERÆ. Habitat, Cambogia in Siam.

**DESCRIPTION.**—Gum resin from *Garcinia Hanburii*; 80 per cent. is resin and 20 per cent. gum. Brittle, smooth, shiny fracture; orange-yellow when fresh, darker with age. Powder a bright canary color. No odor and slight taste; forms an emulsion with water. Soluble in ammoniated alcohol.





**PREPARATION.**—From incisions into the sides of the trees from which the gum exudes and hardens on exposure. Collected in bamboo joints (*pipe gamboge*) and in pots (*cake gamboge*).

**OFFICIAL PREPARATION.**—Pilulæ Catharticæ Composita.

**THERAPEUTIC ACTION.**—Drastic hydragogue cathartic, producing, in large doses, nausea and vomiting; and is poisonous. In the horse it has a tendency to produce enteritis. In dog, given as cathartic pills.

**DOSE.**—Adult, 0.06 to 0.3 gm. (gr. j to gr. v). Horse, 8.0 to 15.0 gm. (3ij to 3iv). Cattle, 16.0 to 32.0 gm. (3iv to 3viij) combined with Epsom salts.

### CAMPHORA.

**CAMPHOR** ( $C_{10}H_{16}O$ ). Sp. gr., 0.985 to 0.996. Natural order, LAURINEÆ. Habitat, China and Japan.

**DESCRIPTION.**—Not a gum, but a stearopten obtained from *Cinnamomum Camphora*. It is purified by sublimation. Usually in large circular cakes, from 1 to 2 inches in thickness, having a strong, penetrating odor resembling mint. Greasy feeling, translucent, brittle, and yet tenacious; will float, and when burned throws off very heavy black fumes of camphoric acid and leaves no residue. Volatile; melts at 228° F. Boils at 400° F. Water dissolves 1 part in 1000, and alcohol three-fourths its weight. Chloroform is the best solvent.

**PREPARATION.**—The leaves or chips of the camphor-tree are first bruised, then mixed with water, put in an iron pot, and covered with an earthenware top which is lined with rice straw. Heated, and the camphor volatilizes, and condenses on the straw. It is picked off, shipped, and resublimed.

**OFFICIAL PREPARATIONS.**—Aquæ Camphoræ, Linimentum Camphoræ, Linimentum Saponis, Spiritus Camphoræ, and Tinctura Opii Camphorata.

**THERAPEUTIC ACTION.**—Stimulant and mild rubefacient. Internally, antispasmodic, diaphoretic, antipyretic, nerve and general stimulant. Eliminated by all the secretions of the body as campho-glycuric acid.

**DOSE.**—Adult, 0.2 to 1.3 gm. (gr. iij to gr. xx). Horse, 4.0

to 8.0 gm. (3j to 3ij). Cattle, double the dose for the horse. Dog, 0.33 to 0.66 gm. (gr. v to gr. x).

### CANNABIS INDICA.

INDIAN CANNABIS, Indian Hemp. Natural order, URTICACEÆ.

DESCRIPTION.—The flowering tops, with part of the stem, of female plant of *Cannabis sativa*; variety, Indica. Two inches long, compressed, and brittle. Small leaves and pointed bracts, which contain two yellowish flowers. The tops are of a greenish-brown color, acrid taste, and of a peculiar narcotic odor. Plant four to eight feet high.

OFFICIAL PREPARATIONS.—Extractum Cannabis Indicæ Fluidum, Extractum Cannabis Indicæ, and Tinctura Cannabis Indicæ.

ACTIVE PRINCIPLE.—Cannabin; also contains a volatile oil.

THERAPEUTIC ACTION.—Antispasmodic, analgesic, hypnotic, and anodyne.

TOXICOLOGY.—Given in overdoses produces exhilaration, due to reflex activity, followed by the reverse. Acts on the sensory side of the cord. Not poisonous to the larger of the lower animals.

ANTIDOTES.—Coffee, ammonia inhaled, and hypodermics of atropine.

DOSE.—*Fluid Extract*.—Adult, 0.06 to 0.6 c. c. (mj to mx). Horse, 15.0 to 30.0 c. c. (f3iv to f3j). Dog, 0.2 to 0.6 c. c. (mij to mx). Can be repeated in one-fourth hour.

### CANTHARIS.

CANTHARIDES, Spanish Fly. *Cantharis vesicatoria*; class, Insecta; order, Coleoptera. Habitat, Southern and Central Europe.

DESCRIPTION.—A beetle,  $\frac{3}{4}$  inch in length,  $\frac{1}{4}$  inch in width. Transparent shining wings of a greenish color. Antennæ black. Strong, disagreeable animal-like odor. Rectangular in shape.







**PREPARATION.**—Shaking the trees on which the insects sit, early in the morning, catching them in sheets, and plunging into boiling water or turpentine.

**OFFICIAL PREPARATIONS.**—Ceratum Cantharidis, Colloodium Cantharidatum, Tinctura Cantharidis, and (unofficial) Linimentum Cantharidis.

**ACTIVE PRINCIPLE.**—Cantharidin.

**THERAPEUTIC ACTION.**—Strong, irritant diuretic; aphrodisiac; and vesicant. Eliminated by the skin and urine.

**TOXICOLOGY.**—Produces a general gastroenteritis and inflammation of the genito-urinary tract and strangury.

**ANTIDOTES.**—Demulcent drinks in large quantities, barley-water, flaxseed-tea, gum arabic, and opium. *Never use fats or oils.*

**DOSE.**—*Tincture.*—Adult, 0.12 to 0.30 c. c. (*mij* to *mv*). Horse, 8.0 to 15.0 c. c. (*f3ij* to *f3iv*). Dog, 0.1 to 1.0 c. c. (*miss* to *mxv*).

### CAPSICUM.

**CAYENNE PEPPER,** Red Pepper. Natural order, SOLANACEÆ. Habitat, tropical Asia and America.

**DESCRIPTION.**—Fruit of *Capsicum fastigiatum*. Oblong, conical, pendulous, berrylike fruit. The seeds are yellowish, and the fruit is either a bright-scarlet or orange-yellow color. Has an intensely hot taste, smooth and shining externally, and internally is two-celled.

**OFFICIAL PREPARATIONS.**—Extractum Capsici Fluidum, Oleoresina Capsici, and Tinctura Capsici.

**THERAPEUTIC ACTION.**—Stimulant, stomachic, rubefacient, and irritant.

**DOSE.**—Adult, 0.06 to 0.3 gm. (gr. j to gr. v). Horse, 1.33 to 4.0 gm. (gr. xx to 3j). Dog, 0.04 to 0.066 gm. (gr.  $\frac{3}{5}$  to gr. j).

### CARDAMOMUM.

**CARDAMON.** Natural order, SCITAMINEÆ. Habitat, Malabar.

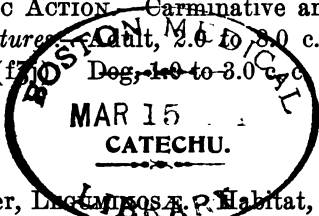
**DESCRIPTION.**—Fruit of *Elettaria repens*. Capsules are pointed at one end, rounded at the other, pale-buff color, three-celled,  $\frac{3}{8}$  to  $\frac{3}{4}$  inches long; the external covering thin and somewhat leathery. The seeds are small, irregular in shape, and somewhat angular. An agreeable, aromatic odor and a strong, pleasant aromatic taste. Seeds constitute 75 per cent. of the capsule.

**PREPARATION.**—The ripe capsules are collected, dried over a slow fire, and the foot-stalks and calyx then rubbed off.

**OFFICIAL PREPARATIONS.**—Tinctura Cardamomi Composita, Tinctura Cardamomi, and Pulvis Aromaticus.

**THERAPEUTIC ACTION.**—Carminative and aromatic.

**DOSE.**—Tinctures.—Adult, 2.0 to 3.0 c. c. (f3ss to f3ij). Horse, 30.0 c. c. (f7j). Dog, 1.0 to 3.0 c. c. (mxv to mxlv).



Natural order, *Diastomaceae*. Habitat, India.

**DESCRIPTION.**—Dried extract prepared by evaporating the juice of *Acacia catechu*; irregular masses; rusty brown externally, lighter internally. Odorless. Astringent taste.

**OFFICIAL PREPARATIONS.**—Tinctura Catechu Composita and Trochisci Catechu.

**THERAPEUTIC ACTION.**—Astringent.

**DOSE.**—Adult, 0.6 to 2.0 gm. (gr. x to gr. xxx). Horse, 4.0 to 12.0 gm. (3j to 3iij). Dog, 0.25 to 1.0 gm. (gr. iv to gr. xv).

### CERA FLAVA.

**YELLOW WAX.** Sp. gr., 0.96.

Origin, *Apis mellifica*. Class, Insecta; order, Hymenoptera.

**DESCRIPTION.**—Peculiar concrete substance made by the bee; brownish-yellow masses; breaks with a greasy granular fracture; melts at 145° F. Soluble in chloroform. Aromatic, honeylike odor.

**THERAPEUTIC ACTION.**—Protective.





**Cera Alba.**

Yellow wax bleached by the sun. Melts at 150° F.

**CHLORAL.**

CHLORAL ( $C_2OHCl_3 + H_2O$ ). Formerly hydrate of chloral.

DESCRIPTION.—There are two forms: the crystalline and the crust chloral. Their therapeutic action is similar. Crystals are rhomboidal in shape, penetrating odor, and sweetish burning taste, resembling chloroform. Volatile. Soluble in its own weight of water, and affinity for water so great that heat is evolved in mixing. Solution undergoes decomposition on standing. Mix equal parts of camphor and chloral, and a liquid results with the characteristics of both.

PREPARATION.—By adding one equivalent of anhydrous chloral to one of water. *Anhydrous chloral* is an oily liquid, made by passing chlorine-gas through absolute alcohol until the HCl gas ceases to escape, then agitating it with three times its measure of sulphuric acid; this is then gently warmed, and an oily liquid rises to the surface. This is anhydrous chloral. It is decanted and distilled from sulphuric acid and quicklime to dehydrate, and the distillate is mixed with one equivalent of water.

THERAPEUTIC ACTION.—Hypnotic; best known; no bad effects. Antispasmodic, local stimulant, and antiseptic.

TOXICOLOGY.—In poisonous doses paralyzes cerebro-spinal centres and reduces temperature. Causes excitement and delirium, and depresses the heart-muscle. Death is due to centric respiratory paralysis.

ANTIDOTE.—Wrap small animals in cotton and put before the fire. Give heart-stimulants, as alcohol, ammonia, etc. In administering chloral be careful not to get it into the lungs; give small quantities. Always give it well diluted with water.

DOSE.—Adult, 0.3 to 4.0 gm. (gr. v to 3j). Horse, 4.0 to 16.0 gm. (3iv to 3ss); for colic, 32.0 gm. (3j). Cattle, 16.0 to 32.0 gm. (3ss to 3j). Dog, 0.33 to 1.0 gm. (gr. v to gr. xv).

**CHLOROFORMUM.**

CHLOROFORM ( $\text{CHCl}_3$ ). Sp. gr., from 1.490 to 1.473.

DESCRIPTION AND PROPERTIES.—Chloroform, having the formula  $\text{CHCl}_3$ , is chemically trichlormethane, or methane (marsh-gas),  $\text{CH}_4$ , in which 3 of the atoms of hydrogen are replaced by Cl. It was discovered by Mr. Samuel Guthrie, of New York, in 1831, who obtained it by distilling a mixture of chlorinated lime and alcohol. It is a clear, heavy, colorless liquid, with a sweet, burning taste and a pleasant, ethereal odor. Mixes in all proportions with alcohol, benzine, ether, and the fixed and volatile oils, only sparingly soluble in water (1 to 200). Boils at  $60^\circ \text{C}$ . It is an excellent solvent of caoutchouc, gutta-percha, iodine, bromine, and most of the resins, balsams, and fats. The alkaloids—quinine, atropine, strychnine, aconitine, brucine, and caffeine—are all soluble, from 15 to 20 per cent., in chloroform. The alkaloidal salts are less soluble; sulphate of quinine is wholly insoluble in it. It is the best solvent we have for camphor. Unlike ether, it is not inflammable, but it is very volatile.

PREPARATION.—This valuable anæsthetic, antispasmodic, and antiseptic is prepared by purifying commercial chloroform. The commercial variety is unfit for anæsthesia, but may be used for local application and various pharmaceutical purposes. Commercial chloroform is prepared by mixing 6 parts of chlorinated lime with 25 parts of water, transferring the mixture to a still and then adding 1 part of alcohol; chloroform containing a small proportion of alcohol begins to distill over when the temperature reaches  $40^\circ \text{C}$ . After being washed with water it constitutes commercial, or crude, chloroform.

The process of purifying it is given in the U. S. D. as follows: "Commercial chloroform, 200 parts; sulphuric acid, 40 parts; carbonate of sodium, 10 parts; lime, in coarse powder, 1 part; alcohol, 2 parts; water, 20 parts. Add the acid to the chloroform and shake them together occasionally during twenty-four hours. Separate the lighter liquid and add to it the sodium carbonate previously dissolved in the water. Agitate the mixture thoroughly for half an hour and set it aside; then separate







the chloroform from the supernatant layer, mix it with the alcohol, transfer it to a dry retort, add the lime, and take care that the temperature in the retort does not rise above  $67.2^{\circ}$  C.; distill by means of a water-bath into a well-cooled receiver until the residue in the retort is reduced to two parts. Keep the product in a glass-stoppered bottle in a cool and dark place."

OFFICIAL PREPARATIONS. — Aqua Chloroformi, Emulsum Chloroformi, Linimentum Chloroformi, and Spiritus Chloroformi.

THERAPEUTIC ACTION.—Anæsthetic (local and general), antispasmodic, antiseptic, counter-irritant, stimulant carminative, and general stimulant.

TOXICOLOGY.—The danger accompanying the administration of chloroform-vapor is: (1) heart-failure; (2) paralysis of respiration; (3) shock. In the second case the patient may be saved by stopping the administration of the drug, admitting pure air, and resorting to artificial respiration. In cardiac arrest the danger is much greater. This is caused by allowing the vapor to be inhaled in too concentrated a form, and is indicated by a sudden stoppage of the heart and dilatation of the pupils; respiration may continue, for a time, after the heart ceases to beat.

In heart-failure due to the action of chloroform-vapors the body should be elevated above the head, vapor of amyl nitrite administered, and artificial respiration resorted to, or a faradic current may be used to stimulate the respiration, one pole being placed on the belly just below the point of the sternum and the other to the side of the neck. Artificial respiration should be used at the same time. When a toxic amount of chloroform is swallowed it causes gastroenteritis by its local action, and afterward, when absorbed, produces anæsthesia and coma. This local irritant action causes vomiting, colic, and purging, but when the stupor comes on these symptoms gradually cease. The usual emollients, demulcents, and sedatives should be administered in these cases, with the inhalation of amyl nitrite. Hypodermics and inhalations of ammonia may be used. Artificial respiration should never be forgotten.

Dose.—Adult (of spirits), 1.2 to 4.0 c. c. (*mxx* to *f3j*). Horses and cattle, 3.75 to 30.0 c. c. (*mlvij* to *f3j*). Sheep and pigs, 1.0 to 3.0 c. c. (*mxv* to *mxlv*). Dog, 0.33 to 1.0 c. c. (*mv* to *mxv*).

Chloroform should always be administered suspended in some mucilaginous or demulcent fluid. Syrup or flaxseed-tea is very good.

### CIMICIFUGA.

CIMICIFUGA, Black Snakeroot. Natural order, RANUNCULACEÆ. Habitat, rich woods of North America.

DESCRIPTION.—Rhizome and rootlets of *Cimicifuga racemosa*. This underground stem grows horizontally and is from 5 to 15 centimetres (2 to 6 inches) in length by about 2 centimetres ( $\frac{4}{8}$  inch) in diameter; has a rough, uneven surface; texture is hard. It has numerous, stout, upright or curved branches. Externally of a brownish-black color, internally a dirty white. Rootlets are brittle, numerous, and irregularly quadrangular; about 2 millimetres ( $\frac{1}{12}$  inch), in diameter. Odorless and has a bitter, acrid taste. Contains resin, tannin, starch, and gum, besides sugar, fatty matter, a green coloring substance, and a black coloring body. A crystalline substance has been isolated which appears to have some of the characteristics of the root. Water and alcohol extract the virtues of the root.

OFFICIAL PREPARATIONS.—Extractum *Cimicifugæ* Fluidum, Tinctura *Cimicifugæ*, and Extractum *Cimicifugæ*.

THERAPEUTIC ACTION.—Alterative, emmenagogue, and sedative.

Dose.—Adult, 0.6 to 4.0 gm. (*gr. x* to *3j*). Horse, 8.0 to 16.0 gm. (*3ij* to *3ss*). Small animals, 0.6 to 4.0 gm. (*gr. x* to *3j*). It may be given in powder, infusion, or fluid extract.

### CINCHONA.

CINCHONA. Natural order, RUBIACEÆ. Habitat, South America, on eastern slope of the Andes, from 10° north to 20°





south latitude, and 4000 to 12,000 feet above sea level. Three principal varieties: *Cinchona Flava*, or yellow; *Cinchona Rubra*, or red; *Cinchona Pallida*, or pale.

OFFICIAL PREPARATIONS.—*Extractum Cinchonæ*, *Extractum Cinchonæ Fluidum*, *Infusum Cinchonæ*, and *Tinctura Cinchonæ*. Of the red bark, *Tinctura Cinchonæ Composita*.

THERAPEUTIC ACTION.—All varieties act similarly: Stomachic, tonic, antipyretic, and antiperiodic.

DOSE.—Adult, 0.3 to 1.3 gm. (gr. v to gr. xx). Horse, 4.0 to 16.0 gm. (3j to 3iv). Cattle, 32.0 to 64.0 gm. (3j to 3ij). Dog, 1.0 to 4.0 gm. (gr. xv to 3j), given three times daily.

*Dose of Quinine Salts*.—Adult, 0.06 to 2.6 gm. (gr. j to gr. xl). Horses and cattle, 2.0 to 5.0 gm. (gr. xxx to gr. lxxv). Dog, 0.065 to 0.52 gm. (gr. j to gr. viiss).

### ***Cinchona Flava.***

#### **YELLOW CINCHONA.**

DESCRIPTION.—The bark of *Cinchona Calisaya*, and called calisaya-bark. Quilled and flat varieties. Outer surface irregular and darker than the pale. Breaks with a mealy fracture. It has a bitter taste, and is very rich in quinine. Slightly astringent. Bright brownish-yellow powder.

### ***Cinchona Pallida.***

#### **PALE CINCHONA.**

DESCRIPTION.—The bark of *Cinchona officinalis*. Seen in market in cylindrical quills, showing size of tree or branch from which it was taken. Smaller pieces are somewhat doubly quilled, and from one-half to two or three lines in thickness. External surface rough and marked with transverse or longitudinal fissures. The greenish-gray color is due to the lichens which grow on the bark. Internal surface is smooth; color, brownish yellow to orange. Powder a pale-fawn color; moderately bitter, astringent taste, due to quinine and cinchotannic acid.

**Cinchona Rubra.**

RED CINCHONA, Red Bark.

DESCRIPTION.—The bark of *Cinchona succirubra*. Flat and quilled, the latter being from  $\frac{1}{2}$  to 2 inches in diameter. Rough and has longitudinal fissures, which sometimes penetrate the inner bark. Beneath the outer bark it is of a brownish-red color. Has a large proportion of the alkaloids. The infusion is a salmon-colored fluid. Red bark is intensely bitter and slightly astringent, and contains at least 5 per cent. of mixed alkaloids.

**COCA.**

COCA. Natural order, LINEÆ. Habitat, Peru and Bolivia.

DESCRIPTION.—Leaves of *Erythroxylon Coca*. Oval, 2 to 3 inches long. Midrib prominent, on each side of which is a curved line running from the apex to the base of the leaf. Odor faint and tealike. Taste bitter and aromatic. Margin is entire.

OFFICIAL PREPARATION.—Extractum Cocæ Fluidum.

ACTIVE PRINCIPLE.—*Cocaine*.—A valuable alkaloid in medicine and surgery, cocaine, with hydrochloric acid, forms a crystalline salt, in which form it is used. Colorless, needle-shaped crystals or crystalline powder. Soluble in water and alcohol, taste bitter, leaves on tongue a numb sensation like that from aconite, due to paralysis of the sensory nerve-endings. Leaves also contain *hygrine* and *cocatannic acid*.

THERAPEUTIC ACTION.—Local anæsthetic, stimulant, tonic, and antemetic.

DOSE.—*Cocaine Hydrochlorate*.—Adult, 0.004 to 0.03 gm. (gr.  $\frac{1}{16}$  to gr.  $\frac{1}{2}$ ). Horse, 0.3 to 0.6 gm. (gr. v to gr. x). Dog, 0.008 to 0.016 gm. (gr.  $\frac{1}{8}$  to gr.  $\frac{1}{4}$ ). For subcutaneous injection for man or horse use an aqueous solution from 3- to 10-per-cent. strength.

**COCCULUS.**

COCCULUS INDICUS, Fishberries (unofficial). Natural order, MENISPERMACEÆ. Habitat, island of Malabar, East Indies.







DESCRIPTION.—Fruit of *Anamirta Cocculus*. Roundish or kidney-shaped; size of a pea; outer covering thin, dry, and wrinkled; inside, creamy white and oily. Bitter, poisonous, principle *picrotoxin*. Little odor. They belong to the “Moonseed Family.”

PREPARATIONS.—Extractum Cocculus Indicæ Fluidum and Picrotoxin.

THERAPEUTIC ACTION.—Parasiticide. Never used internally.

### COLCHICI RADIX.

COLCHICUM - ROOT, Meadow Saffron. Natural order, LILIACEÆ. Habitat, temperate portions of Europe and North America.

DESCRIPTION.—Corm of *Colchicum autumnale*. A corm like that of the tulip; brown, membranous coat; white, fleshy, and starchy. If cut transversely yields, when fresh, a white, acrid juice. The dried corm has a starchy appearance; a bitter, acrid taste; and is about the size of a large chestnut.

OFFICIAL PREPARATIONS.—Extractum Colchici Radicis, Extractum Colchici Radicis Fluidum, and Vinum Colchici Radicis.

THERAPEUTIC ACTION.—Emetic, cathartic, and cholagogue.

TOXICOLOGY.—An accumulative poison. Nausea, colic, purging, etc., slowly eliminated, general gastroenteritis, coldness of extremities, collapse, and death.

ANTIDOTES.—Tannic acid; empty the stomach; give respiratory and cardiac stimulants and demulcent drinks.

DOSE.—Wine.—Adult, 0.3 to 1.0 c. c. (*mv* to *mxv*). Horse, 2.0 to 8.0 gm. (gr. xxx to 3ij). Cattle, 4.0 to 8.0 gm. (3j to 3ij). Dog, 0.12 to 0.50 gm. (gr. ij to gr. vij).

### COLCHICI SEMEN.

COLCHICUM SEEDS. Seeds of meadow saffron. Natural order, LILIACEÆ. Habitat, temperate region of Europe and America.

**DESCRIPTION.**—The dried seeds of *Colchicum autumnale*. Subglobular in shape, about 2 millimetres thick, circular hilum, dull reddish-brown color externally and finely pitted. Internally, creamy white, oily, hard, and tough. Inodorous; bitter, acrid taste. They contain from 6 to 8 per cent. of a fixed oil, gum, sugar, and two alkaloids. One, called *colchicine*, is a yellow, amorphous substance having a bitter taste; it is soluble in alcohol and chloroform and is precipitated by tannic acid. The other alkaloid, *colchiceine*, is in white crystals which are soluble in alcohol, chloroform, and hot water; odorless, and have a bitter, acrid taste. This alkaloid is also precipitated by tannic acid.

**OFFICIAL PREPARATIONS.**—Extractum Colchici Seminis Fluidum, Tinctura Colchici Seminis, and Vinum Colchici Seminis.

**THERAPEUTIC ACTION.**—Cathartic, emetic, and sedative.

**DOSE.**—Adult, 0.13 to 0.3 gm. (gr. ij to gr. v). Horse, 2.0 to 8.0 gm. (3ss to 3ij). Dog, 0.12 to 0.5 gm. (gr. ij to gr. viij).

### COLOCYNTHIS.

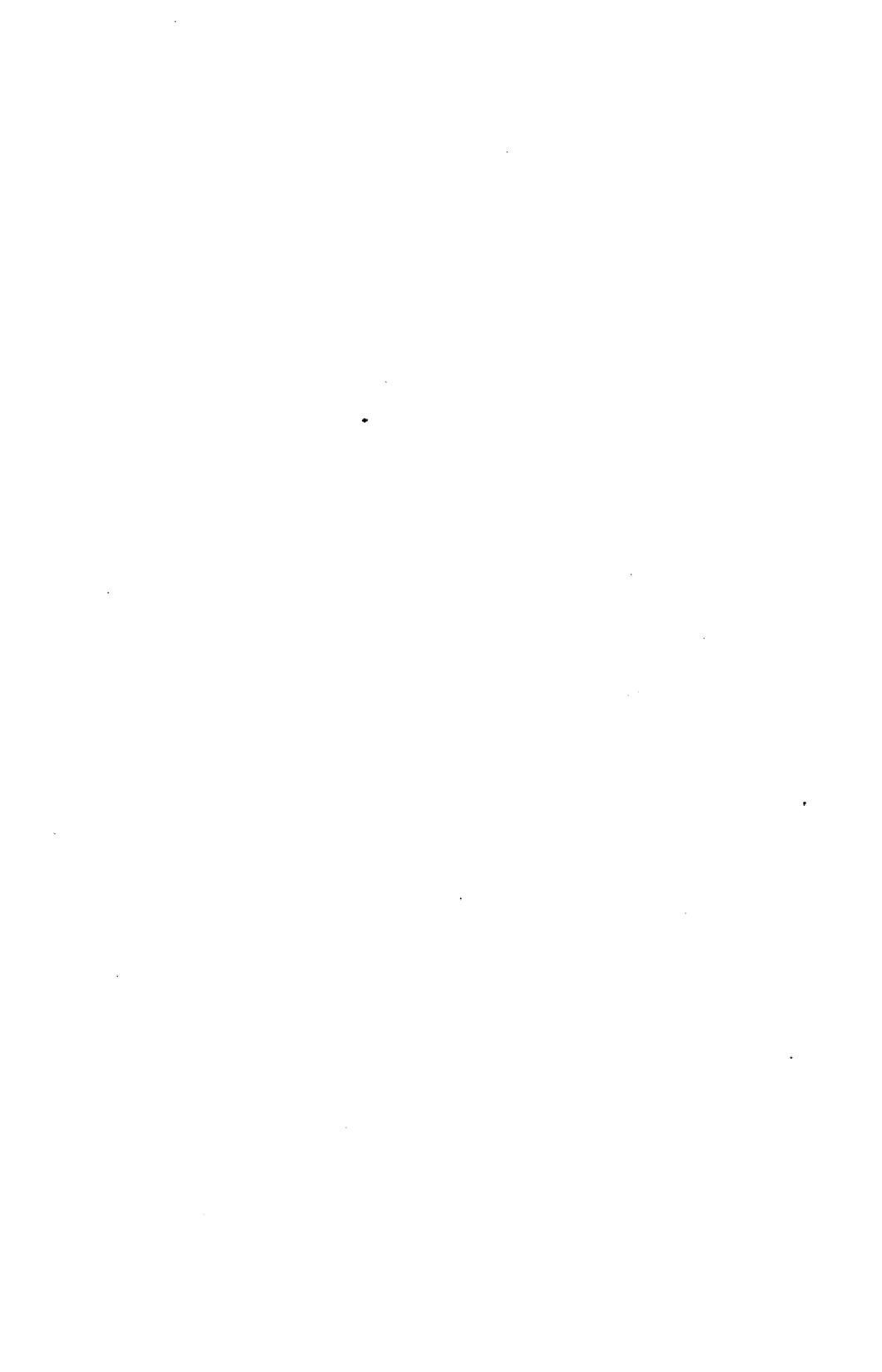
**COLOCYNTH**, Bitter Apple, or Bitter Cucumber. Natural order, CUCURBITACEÆ. Habitat, Turkey, and found also in Asia and Africa.

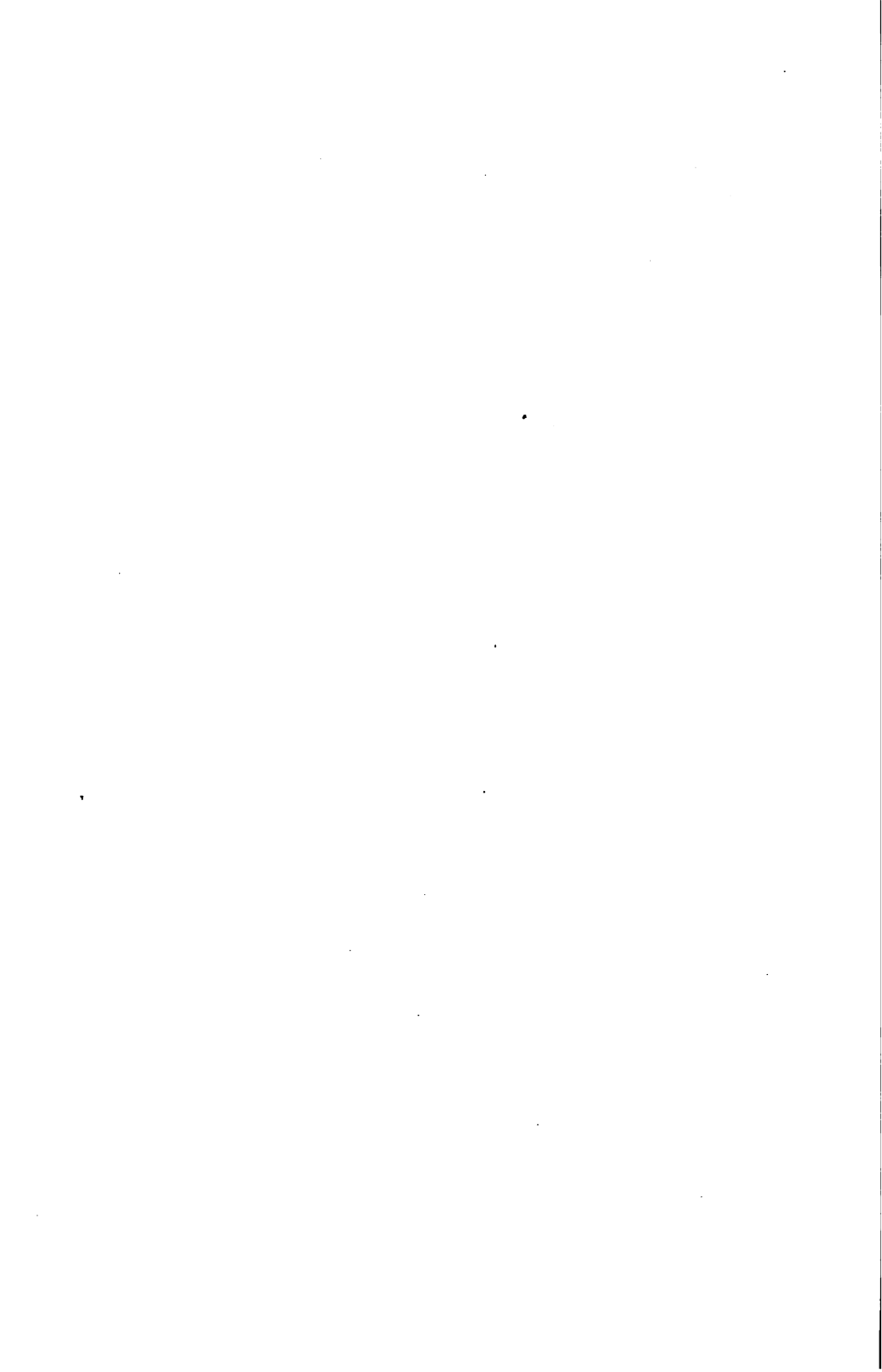
**DESCRIPTION.**—Fruit of *Citrullus Colocynthis* deprived of its outer rind. Yellowish-white, round balls about the size of a small orange. Light in weight, and contains three double cells filled with seeds. The seeds comprise three-fourths the weight of the fruit. Little odor, very bitter. The seeds are inactive; the pulp is the active portion.

**OFFICIAL PREPARATION.**—Extractum Colocynthis.

**THERAPEUTIC ACTION.**—Powerful hydragogue cathartic, producing watery stools, and, in pregnant females, abortion, caused by the irritant action primarily upon the intestinal tract.

**DOSE.**—Adult, 0.06 to 0.5 gm. (gr. j to gr. viij). Horse, 4.0 to 8.0 gm. (3j to 3ij). Cattle, 6.0 to 12.0 gm. (3iss to 3iij). Dog, 0.2 to 0.5 gm. (gr. iij to gr. vij). Best for the dog in the form of compound cathartic pills.





**COPAIBA.**

COPAIBA, Balsam of Copaiba. Sp. gr., 0.951 to 1.000. Natural order, LEGUMINOSÆ. Habitat, Brazil and Venezuela.

DESCRIPTION.—Oleoresin, obtained from *Copaiba Langsdorffii* and other species of copaiba by incisions into the trunk. Transparent, yellowish liquid, darkening on exposure, and of the consistence of olive-oil. Balsamic odor, bitter taste, and nauseous. Insoluble in water; soluble in ether, alcohol, and alcoholic solutions.

OFFICIAL PREPARATIONS.—Massa Copaibæ and Oleum Copaibæ.

THERAPEUTIC ACTION.—Stimulant, diuretic, and laxative.

DOSE.—Adult, 1.0 to 4.0 c. c. (*mxv* to *f3j*). Horse, 7.5 to 11.25 c. c. (*f3ij* to *f3iij*). Dog, 0.66 to 1.5 c. c. (*mx* to *mxxij*). Always as an emulsion.

**CREOSOTUM.**

CREOSOTE ( $C_{13}H_{10}O_4$ ) (?). Sp. gr., 1.070.

DESCRIPTION.—A mixture of phenols chiefly guaiacol and creosol obtained by distilling wood-tar, preferably that derived from beechwood, *Fagus sylvatica*. Yellowish-white, oily liquid, slightly greasy feeling. Volatilized by heat. Smoky odor and burning taste. When applied to epidermis, causes it to pucker up and finally destroys it. Boils at 402° F., and will not solidify at — 4° F. Mixes slightly with water. Freely soluble in ether and alcohol. Iodine, phosphorus, and sulphur are soluble in creosote. The name is derived from Greek words meaning "flesh-preserver." Fresh meat painted with it, or immersed in a 5- to 10-per-cent. aqueous solution of it, will keep for a long time.

Differential tests between creosote and carbolic acid show that the *odor* of the former is more smoky than that of carbolic acid; the creosote *does not coagulate collodion* and is *insoluble* in glycerin. A splinter of pine does not turn blue when dipped into creosote and then into hydrochloric acid, but does so with carbolic acid.

OFFICIAL PREPARATION.—Aqua Creosoti.

THERAPEUTIC ACTION.—Antipyretic, styptic, antiseptic, and escharotic.

TOXICOLOGY AND ANTIDOTE.—Same as carbolic acid.

DOSE.—Adult, 0.05 to 0.1 c. c. (*mj* to *miss*). Horse, 0.66 to 1.33 c. c. (*mx* to *mxx*). Dog, 0.03 to 0.12 c. c. (*mss* to *mij*).

### CUBEBA.

CUBEBS. Natural order, PIPERACEÆ. Habitat, Java and other East Indian isles.

DESCRIPTION.—The unripe fruit of *Piper Cubeba*. Small, round, about the size of a dried pea; blackish-brown fruit nearly always with footstalk attached. Dark externally, whitish internally. Agreeable aromatic odor and a warm, bitterish taste; after-taste like mint. Yields a greenish oil.

OFFICIAL PREPARATIONS.—Extractum Cubebæ Fluidum, Oleoresina Cubebæ, and Tinctura Cubebæ.

THERAPEUTIC ACTION.—Expectorant. Stimulant to pulmonary tract. Action on mucous membrane similar to copaiba. Has a special action on the genito-urinary mucous membrane. Diuretic.

DOSE.—*Powdered Cubeb or Fluid Extract*.—Adult, 2.0 to 4.0 gm. (*3ss* to *3j*). Horse, 4.0 to 16.0 gm. (*3j* to *3ss*). Cattle, 8.0 to 32.0 gm. (*3ij* to *3j*). Dog, 1.0 to 2.0 gm. (*gr. xv* to *gr. xxx*).

### CUPRUM.

COPPER, Copper Wire (Cu). Sp. gr., 8.89.

#### Cupri Acetas.

COPPER ACETATE, Verdigris ( $\text{CuCuO}[\text{C}_2\text{H}_3\text{O}_2]_2$ ) (unofficial).

DESCRIPTION.—Masses of a pale-green color composed of a number of small crystals. Coppery taste; pungent, vinegarlike odor. When dissolved in sulphuric acid it yields sulphate of copper and free acetic acid. In France it is prepared by subject-







ing plates of copper to the action of pomace and after some months the acetate is removed. In England the plates of copper are allowed to stand in impure acetic acid until covered with crystals of the salt.

**THERAPEUTIC ACTION.**—Extremely escharotic, detergent, and vermifuge.

**TOXICOLOGY.**—Active, corrosive poison; bluish-colored stools. Gastroenteritis, convulsions, and death. Fatty degeneration of the liver is found on autopsy.

**ANTIDOTES.**—Empty the stomach; give milk, eggs, soap, etc.

**DOSE.**—Adult, 0.015 to 0.06 gm. (gr.  $\frac{1}{4}$  to gr. j). Horse, 4.0 to 8.0 gm. (3j to 3ij). Not used on smaller animals.

### Cupri Sulphas.

**COPPER SULPHATE, Blue Stone** ( $\text{CuSO}_4 + 5\text{H}_2\text{O}$ ).

**DESCRIPTION.**—Large, triclinic crystals of a deep-blue color; effloresce in moist air and in heat. Odorless. Metallic taste. Soluble in 4 parts of cold and 2 parts of boiling water. Insoluble in alcohol. Liquefied by heat.

**PREPARATION.**—Treating copper plates with sulphuric acid.

**THERAPEUTIC ACTION.**—Vermifuge and astringent. Small doses tonic; large doses emetic.

**TOXICOLOGY AND ANTIDOTE.**—Same as subacetate.

**DOSE.**—Adult, 0.01 to 0.03 gm. (gr.  $\frac{1}{6}$  to gr.  $\frac{1}{2}$ ). Horse, 4.0 to 6.0 gm. (3j to 3iiss). Dog, 0.01 to 0.1 gm. (gr.  $\frac{1}{6}$  to gr. iss).

*Emetic.*—Dog, 0.04 to 0.66 gm. (gr.  $\frac{1}{16}$  to gr. x).

### CUSO.

**KOUSO, Brayera.** Natural order, ROSACEÆ. Habitat, Abyssinia.

**DESCRIPTION.**—Panicles of female flowers of *Hagenia Abyssinica*. Come in rolls about 10 inches long, consisting of bundles of panicles about 25 centimetres long, with a bract at the base of each branch. Odor like hay. Taste, bitter and nauseous. Color,

reddish yellow. Contains 25 per cent. of tannic acid and 21 per cent. of resin.

OFFICIAL PREPARATION.—*Extractum Cusso Fluidum*.

ACTIVE PRINCIPLE.—*Koussin*, which is a yellow, tasteless crystal insoluble in water.

THERAPEUTIC ACTION.—Anthelmintic and tænicide.

DOSE.—Adult, 15.0 gm. (℥ss). Dog, 8.0 to 24.0 gm. (℥ij to ℥vj), followed by a cathartic.

*Koussin*.—Adult, 0.33 to 2.0 gm. (gr. v to gr. xxx). Dog, 0.12 to 1.0 gm. (gr. ij to gr. xv).

### DIGITALIS.

DIGITALIS, Foxglove. Natural order, SCROPHULARINEÆ. Habitat, Europe.

DESCRIPTION.—Leaves of *Digitalis purpurea* from second-year plants. The plant is from 2 to 5 feet high, terminating in a spike, covered with flowers. The leaves are oblong ovate from 4 to 12 inches in length; dull green on top, lighter underneath. Midrib becomes broader at the base. Faint, tealike odor; bitter, nauseous taste.

OFFICIAL PREPARATIONS.—*Extractum Digitalis*, *Infusum Digitalis*, *Tinctura Digitalis*, and *Extractum Digitalis Fluidum*.

ACTIVE PRINCIPLE.—*Digitalin*, an accumulative poison.

THERAPEUTIC ACTION.—Cardiac stimulant, tonic, and diuretic.

TOXICOLOGY.—Gastroenteritis, extreme force of heart, extremities growing cold, pulse feeble or imperceptible, eyes protruding, breathing becomes difficult, and death may occur in a few hours or after several days.

ANTIDOTES.—Tannic acid, alcohol in small doses, and quiet.

DOSE.—*Leaves*.—Adult, 0.03 to 0.12 gm. (gr. ss to gr. ij). Horse, 1.0 to 4.0 gm. (gr. xv to ℥j). Cattle, 4.0 to 8.0 gm. (℥j to ℥ij).

*Tincture*.—Adult, 0.2 to 1.5 c. c. (miv to mxxv). Horse, 7.5 to 15.0 c. c. (f℥ij to f℥ss). Dog, 0.12 to 0.16 c. c. (mij to miiss).





**ERGOTA.**

ERGOT, "Spurred Rye." Natural order, GRAMINEÆ.

DESCRIPTION.—The spawn of *Claviceps purpurea* (class, *Fungi*), replacing the grain of *Secale cereale* (natural order, GRAMINEÆ). Found in the inflorescence of *Secale cereale* (rye). Named from likeness to the spur of a cock. Solid brittle grain, fusiform in shape, 1 inch long,  $\frac{1}{6}$  inch thick; externally, dark purplish; internally, white; heavy, rather fishy odor. Oily, unpleasant taste. It is unfit for use when more than one year old.

OFFICIAL PREPARATIONS.—Extractum Ergotæ Fluidum, Vinum Ergotæ, and Ergotin.

ACTIVE PRINCIPLE.—Ergotin (?).

THERAPEUTIC ACTION.—Emmenagogue, ecboic, hæmodynamic, oxytocic, poisonous, and vasomotor stimulant.

DOSE.—*Ergot or Fluid Extract*.—Adult, 2.0 to 4.0 gm. (3ss to ʒj). Horse and cattle, 16.0 to 32.0 gm. (ʒss to ʒj). Bitch, 4.0 gm. (ʒj).

*Ergotin*.—Adult, 0.18 to 0.72 gm. (gr. iij to gr. xij). Horse and cattle, 1.0 to 2.0 gm. (gr. xv to gr. xxx). Dog, 0.065 to 0.26 gm. (gr. j to gr. iv). Ergotin or the fluid extract may be administered hypodermically.

**EUCALYPTUS.**

EUCALYPTUS. Natural order, MYRTACEÆ. Habitat, Australia.

DESCRIPTION.—Leaves of *Eucalyptus globulus*, an evergreen tree growing to the height of from three hundred to four hundred feet. The bark is smooth and of a gray color. The leaves are large, being from 15 to 30 centimetres (6 to 12 inches) in length. They are petiolate, lanceolate, and scythe-shaped, entire margin. These leaves are feather-veined, of a grayish-green color, and have a rather pleasant, balsamic odor and a pungent, aromatic, bitter, astringent taste. They contain tannin and a volatile oil, the latter, when fresh, having a not unpleasant

mintlike odor and taste. The volatile oil has all the virtues of the leaves.

OFFICIAL PREPARATIONS.—Oleum Eucalypti and Extractum Eucalypti Fluidum.

THERAPEUTIC ACTION.—Antiperiodic, stimulant, astringent, and antiseptic.

DOSE.—Oil.—Adult, 0.55 to 1.12 c. c. (*mx* to *mxx*). Horse, 4.0 to 8.0 c. c. (*f3j* to *f3ij*). Dog and cat, 0.55 to 0.8 c. c. (*mx* to *mxij*).

### EUPHORBIIUM.

EUPHORBIIUM (unofficial). Natural order, EUPHORBIACEÆ. Habitat, Morocco.

DESCRIPTION.—Concrete juice of *Euphorbia resinifera* and other species of euphorbium.

PREPARATION.—By making incisions into tree, from which a milky juice exudes and hardens. Tears or nodelike masses. No odor. Strong, acrid taste. Partly soluble in alcohol and ether. A gum resin containing 18 per cent. of gum and 38 per cent. of resin. Plants are like the cacti.

ACTIVE PRINCIPLE.—Euphorbon represents the activity of the drug; present to the amount of 22 per cent.

THERAPEUTIC ACTION.—Drastic purgative, emetic, and sternutatory; externally a rubefacient and vesicant. Used externally only.

### FERRUM.

IRON, Metallic Iron, in the form of fine, bright, nonelastic wire (Fe). Sp. gr., 7.7.

#### Ferri Citras.

##### CITRATE OF IRON.

DESCRIPTION.—It is in the form of bright reddish-brown scales. No odor, mild chalybeate taste.

PREPARATION.—By evaporation of the solution of citrate of iron.







**THERAPEUTIC ACTION.**—Tonic.

**DOSE.**—Adult, 0.12 to 0.3 gm. (gr. ij to gr. v). Horse, 4.0 to 8.0 gm. (3j to 3ij). Cattle, double the dose for the horse. Dog, 0.2 to 1.5 gm. (gr. iij to gr. xxij).

#### **Ferri et Ammonii Citras.**

**CITRATE OF IRON AND AMMONIUM.**

**DESCRIPTION.**—Bright-brown scales; soluble in water. No odor.

**PREPARATION.**—From citric acid, solution of tersulphate of iron, and water of ammonia.

**THERAPEUTIC ACTION.**—Same as citrate of iron.

**DOSE.**—Same as citrate of iron.

#### **Ferri et Quinia Citras.**

**CITRATE OF IRON AND QUININE.**

**DESCRIPTION.**—Thin, transparent scales; soluble in water. Varies from a yellowish to a reddish-brown color, with a tinge of green. Taste, bitter and metallic.

**PREPARATION.**—Solution of citrate of iron, with quinine sulphate, sulphuric acid, and the addition of ammonia to make it soluble. Dissolve sulphate of quinine in sulphuric acid, add ammonia to the solution of citrate of iron, mix the two solutions, evaporate, and dry in warm oven.

**THERAPEUTIC ACTION.**—Tonic.

**DOSE.**—Adult, 0.3 to 0.6 gm. (gr. v to gr. x). Horse, 4.0 to 6.0 gm. (3j to 3iiss). Cattle, double the dose for the horse. Dog, 0.2 to 0.4 gm. (gr. iij to gr. vj).

#### **Ferri Sulphas.**

**FERROUS SULPHATE, Sulphate of Iron** ( $[\text{FeSO}_4] + 7\text{H}_2\text{O}$ ).

**SYNONYMS.**—Green Vitriol, Copperas.

**DESCRIPTION.**—Green, rhombic crystals; transparent; odorless; saline, styptic taste; acid reaction. Exposed to sunlight

deliquesces, then effloresces. Soluble in water; insoluble in alcohol.

PREPARATION.—By the action of sulphuric acid on fine iron wire.

OFFICIAL PREPARATIONS.—Ferri Sulphas Exsiccatus and Ferri Sulphas Granulatus.

THERAPEUTIC ACTION.—Tonic, astringent, and vermifuge.

DOSE.—Adult, 0.03 to 0.20 gm. (gr. ss to gr. iij). Horse, 0.2 to 8.0 gm. (gr. iij to 5ij). Cattle, double the dose for the horse. Dog, 0.13 to 0.6 gm. (gr. ij to gr. ix).

### **Ferrum Redactum.**

REDUCED, or POWDERED, IRON.

DESCRIPTION.—It is a grayish-black powder. Without odor or taste; permanent in the air.

PREPARATION.—By reducing the subcarbonate of iron while at a dull-red heat, by passing purified hydrogen through it.

THERAPEUTIC ACTION.—Tonic.

DOSE.—Adult, 0.03 to 0.2 gm. (gr. ss to gr. iij). Horse, 1.5 to 3.0 gm. (gr. xxij to gr. xlv). Cattle, 3.0 to 5.0 gm. (gr. xlv to gr. lxxv). Dog, 0.065 to 0.33 gm. (gr. j to gr. v).

### **Liquor Ferri Chloridi.**

SOLUTION OF CHLORIDE OF IRON.

DESCRIPTION.—It is a red-brown aqueous solution of ferric chloride, of astringent taste. Soluble in water and alcohol, and contains 62.9 per cent. of crystallized salt ( $\text{Fe}_2\text{Cl}_6$ ), or 13 per cent. of metallic iron.

PREPARATION.—By the action of hydrochloric acid and nitric acid on iron wire, the product being mixed with water.

THERAPEUTIC ACTION.—Styptic and tonic.

### **Liquor Ferri Subsulphas.**

SOLUTION OF SUBSULPHATE OF IRON. Monsell's Solution.  
Sp. gr., 1.552.





**DESCRIPTION.**—Syrupy, ruby-colored liquid; soluble in water and alcohol. Contains salt equal to 13.6 per cent. of metallic iron. Strongly acid, styptic taste, and an acid reaction.

**PREPARATION.**—By making a solution of ferrous sulphate with sulphuric and nitric acids in distilled water.

**MONSELL'S SALT.**—A yellowish, amorphous mass, having all the characteristics of the solution, in a concentrated form. It is prepared by slowly evaporating the solution to dryness.

**DOSE (OF THE SALT).**—Adult, 0.06 to 0.13 gm. (gr. j to gr. ij). Horse, 4.0 to 6.0 gm. (3j to 5iss). Dog, 0.2 to 1.0 gm. (gr. iij to gr. xv), in form of a pill or capsule.

### **Liquor Ferri Tersulphatis.**

**SOLUTION OF TERSULPHATE OF IRON.** Sp. gr., 1.32.

**DESCRIPTION.**—An aqueous solution of normal ferric sulphate ( $\text{Fe}_2[\text{SO}_4]_2$ ). Contains 28.7 per cent. of salt equal to 8 per cent. of metallic iron. A mobile liquid, reddish brown, not so dark as Monsell's; sour, acrid taste; mixes with water and alcohol in all proportions.

**DOSE.**—*Ad libitum*, diluted. Chiefly used to make the antidote for arsenical poisoning.

### **FRANGULA.**

**BUCKTHORN.** Natural order, RHAMNEÆ. Habitat, Europe and North Asia.

**DESCRIPTION.**—Fruit of *Rhamnus frangula*, a four-celled berry, globular, wrinkled after drying,  $\frac{1}{5}$  inch in diameter. Greenish brown to a black color. Taste, bitter, acrid, and nauseous. Contains a yellow active principle, *cathartin*. Alcohol and water extract its virtues.

**THERAPEUTIC ACTION.**—An active cathartic. Laxative and purgative. Best cathartic for dog.

**DOSE.**—*Syrup.*—Adult, 8.0 to 30.0 c. c. (f3ij to f3j). Dog, 30.0 to 60.0 c. c. (f3j to f3ij). Cat, 15.0 to 30.0 c. c. (f3ss to f3j).

**GALLA.**

**NUTGALL.** Habitat, Levant.

**DESCRIPTION.**—A morbid excrescence on the leaves of *Quercus lusitanica* (natural order, CUPULIFERÆ), caused by puncture and deposited ova of *Cynips gallæ tinctoriæ*, an insect of the class Insecta; order, Hymenoptera. Subglobular, 1 inch in diameter, short stem, heavy and hard, and covered with small nodelike projections, with small opening from which the fly has escaped. If no hole, the remains of the insect are generally found inside. Dark olive green; light clay-color inside. Taste, strongly astringent.

**THERAPEUTIC ACTION.**—Astringent.

**DOSE.**—Adult, 0.13 to 0.65 gm. (gr. ij to gr. x). Horse, 3.0 to 12.0 gm. (gr. xlv to ʒiij). Cattle, 3.0 to 16.0 gm. (gr. xlv to ʒiv). Dog, 0.13 to 0.65 gm. (gr. ij to gr. x).

**GAULTHERIA.**

**GAULTHERIA.** Natural order, ERICACEÆ. Habitat, United States.

**SYNONYMS.**—Partridge-berry, wintergreen.

**DESCRIPTION.**—The leaves of *Gaultheria procumbens*. They are obovate or round-oval in shape, about 4 centimetres ( $1\frac{3}{8}$  inches) long by 2 centimetres ( $\frac{4}{8}$  inch) broad; they terminate abruptly; have serrated edges; are smooth and glossy; dark green above, with a reddish-brown cast; paler beneath. Odor is very fragrant; taste is aromatic and astringent. Gaultheria contains a volatile oil, arbutin, tannin, sugar, and gum.

**THERAPEUTIC ACTION.**—Stimulant, astringent, diuretic, and emmenagogue.

**DOSE.**—Adult, 1.0 to 4.0 gm. (gr. xv to ʒj).

**Oleum Gaultheriæ.**

**OIL OF WINTERGREEN.** Sp. gr., 1.180.

**DESCRIPTION.**—The volatile oil distilled from the leaves of *Gaultheria procumbens*. Colorless or yellow and sometimes a







reddish liquid; rather more viscid than most volatile oils. Odor is strongly aromatic and the taste sweetish and aromatic. This oil contains 90 per cent. of *methyl salicylate*, and about 81 per cent. of pure salicylic acid. Freely soluble in alcohol, and with nitric acid yields colorless prismatic crystals.

OFFICIAL PREPARATION.—*Spiritus Gaultheriæ*.

THERAPEUTIC ACTION.—Carminative, antipyretic, and anti-rheumatic.

DOSE.—Adult, 2.0 to 3.0 c. c. (*mxxx to mxlv*). Horse, 8.0 to 10.0 c. c. (*f3ij to f3iiss*). Small animals, 1.0 to 4.0 c. c. (*mxv to f3j*). It is given in capsule or as an emulsion.

### GELSEMIUM.

GELSEMIUM, Yellow Jasmine. Natural order, LOGANIACEÆ. Habitat, Southern United States.

DESCRIPTION.—The rhizome and rootlets of *Gelsemium sempervirens*. It is in long cylindrical pieces or cut in sections to facilitate the drying process and about 3 centimetres ( $1\frac{1}{4}$  inches) in diameter. External color is light yellowish brown with purplish longitudinal lines. It is a tough root and breaks with a splintery fracture. Internally it is of a light clay color. Odor is heavy and aromatic and the taste bitter. Bark is thin and adheres closely to the wood. Gelsemium contains a volatile oil, resin, and starch, besides an alkaloid, *gelsemine*, combined with gelseminic acid. This alkaloid is amorphous, soluble in ether, alcohol, and chloroform and slightly so in water.

OFFICIAL PREPARATIONS.—*Extractum Gelsemii Fluidum* and *Tinctura Gelsemii*.

THERAPEUTIC ACTION.—Sedative, diaphoretic, nervine, and antispasmodic.

TOXICOLOGY.—Gelsemium and its preparations are active poisons, death being due to paralysis of respiration. The most prominent symptoms of poisoning by this drug are convulsions and paralysis, the latter being of spinal origin.

TREATMENT of poisoning by gelsemium should be the administration of tannic acid and respiratory stimulants, such

as atropine, etc.; sulphate of morphia in rather heroic doses has been recommended.

DOSE.—*Fluid Extract*.—Adult, 0.3 c. c. (*mv*). Horse, 1.0 to 2.0 c. c. (*mxv* to *mxxx*). Dog and cat, 0.1 to 0.3 c. c. (*miss* to *mv*).

### GENTIANA.

GENTIAN. Natural order, GENTIANACEÆ. Habitat, Southern Europe.

DESCRIPTION.—Root of *Gentiana lutea*. Pieces cylindrical or sliced, 1 inch in diameter, of yellowish-brown color. Flexible and tough when damp, brittle when dry. Odor is faintly aromatic, taste is persistently bitter. Bark is thick. Alcohol and water extract the virtues of this drug.

OFFICIAL PREPARATIONS.—Extractum Gentianæ, Extractum Gentianæ Fluidum, and Tinctura Gentianæ Compositum.

THERAPEUTIC ACTION.—Tonic and stomachic.

DOSE.—*Fluid Extract*.—Adult, 0.6 to 2.0 c. c. (*mx* to *mxxx*).

*Powder*.—Horse, 16.0 to 32.0 gm. (3ss to 3j). Cattle, 32.0 to 64.0 gm. (3j to 3ij). Sheep, 4.0 to 12.0 gm. (3j to 3iij). Dog, 0.66 to 1.3 gm. (gr. x to gr. xx).

### GLONINUM.

GLONIN, Nitroglycerin ( $C_3H_5[NO_3]_3$ ). Sp. gr., 1.55.

DESCRIPTION.—It is a yellow liquid, but when pure is almost colorless; transparent and odorless. Taste is sweet, pungent, and aromatic. Soluble in alcohol, ether, and oils, but only sparingly so in water.

PREPARATION.—Dropping pure glycerin into pure sulphuric and nitric acid, kept cool by ice. Poured into water and washed, separated, and dried in a warm room.

OFFICIAL PREPARATION.—Spiritus Glonoini (a 1-per-cent. alcoholic solution).

THERAPEUTIC ACTION.—Stimulant and tonic to circulatory organs. Like nitrite of amyl; not so prompt, but more persistent and powerful.





DOSE.—*Spirit*.—Adult, 0.06 c. c. (gtt. j). Horse, 0.6 to 1.0 c. c. (*mx* to *mxv*). Dog, 0.01 to 0.12 c. c. (*m*  $\frac{1}{6}$  to *mij*). Begin with minimum dose and gradually increase.

### GLYCERINA.

GLYCERIN ( $C_3H_8O_3$ ). Sp. gr., 1.25.

DESCRIPTION.—Chemically, a triatomic alcohol, propenyl alcohol (an alcohol of paraffin, propene). Colorless, inodorous liquid having a sweet taste; contains a small quantity of water. Greasy to the touch. Discovered in 1789 by Scheele. It increases the laxative power of castor-oil. It is a solvent, and dissolves alum in proportion of 1 to 5; tannin, 1 to 4; gallic acid, 1 to 4; carbolic acid, 1 to 4; borax and acetate and oxide of lead are also soluble in it.

PREPARATION.—When fats and oils are saponified by lead oxide glycerin is a side-product. Also produced during the saponification of fats by potassa and soda in the manufacture of soaps. Purified by distilling it under steam pressure. Often of low specific gravity; then redistilled until right.

THERAPEUTIC ACTION.—Laxative, emollient, and nutrient.

DOSE.—*By Mouth*.—Adult, 4.0 to 8.0 c. c. (*f3j* to *f3ij*). Horse, 15.0 to 30.0 c. c. (*f3ss* to *f3j*). Dog, 4.0 to 8.0 c. c. (*f3j* to *f3ij*), diluted.

*By Rectum*.—Adult, 4.0 to 8.0 c. c. (*f3j* to *f3ij*). Horse, 30.0 to 60.0 c. c. (*f3j* to *f3ij*). Dog, 7.5 to 15.0 c. c. (*f3ij* to *f3iv*), undiluted.

### GLYCYRRHIZA.

LICORICE. Natural order, LEGUMINOSÆ. Habitat, South Europe.

DESCRIPTION.—Root of *Glycyrrhiza glabra*. In pieces up to 2 inches in thickness. Externally, dull brown; internally, dull yellow. Woody in texture and having a sweet and mucilaginous taste. Powder, dark yellow.

OFFICIAL PREPARATIONS.—Extractum Glycyrrhizæ Fluidum, Extractum Glycyrrhizæ Purum, Glycyrrhizinum Ammoniatum, and Pulvis Glycyrrhizæ Compositus.

ACTIVE PRINCIPLE.—Glycyrrhizin is a glucoside; is soluble in water containing a little ammonia.

THERAPEUTIC ACTION.—Demulcent and expectorant.

### Extractum Glycyrrhiza Purum.

PURE EXTRACT OF LICORICE.

DESCRIPTION.—Rolls, 5 to 6 inches long. Black, hard, and brittle. Taste, sweet and slightly acrid. Soluble in water. Breaks with a sharp, horny, shining fracture.

PREPARATION.—By exhausting ground licorice with water containing a small quantity of ammonia-water, then filtering the solution and concentrating it by means of a water-bath. It is then poured into molds.

OFFICIAL PREPARATION.—Mistura Glycyrrhizæ Composita.

THERAPEUTIC ACTION.—Demulcent and expectorant.

DOSE.—*Ad libitum*.

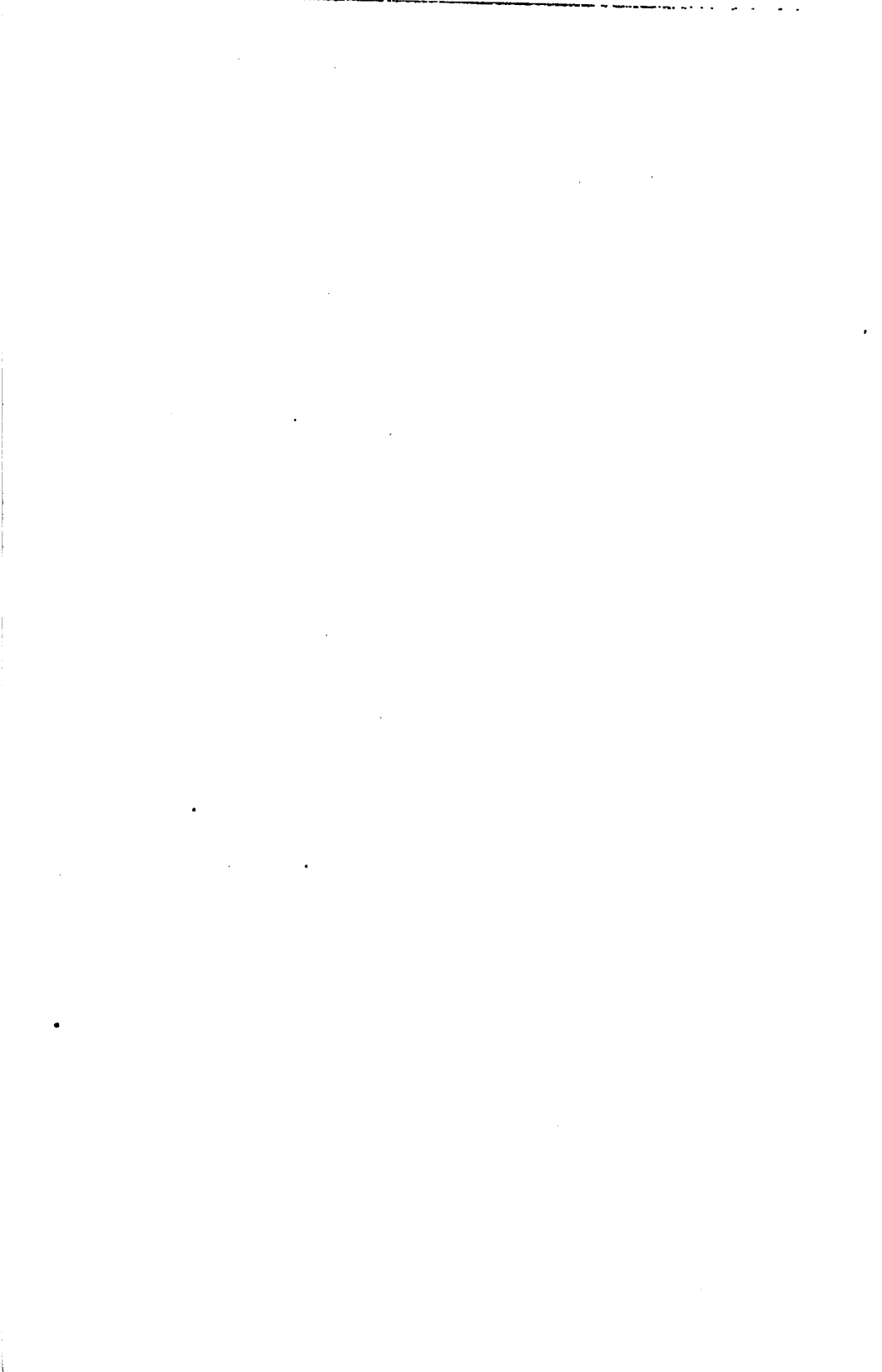
### GUAIACI LIGNUM.

GUAIAAC-WOOD. Natural order, ZYGOPHYLLÆÆ. Habitat, West Indies and Northern South America.

DESCRIPTION.—The heart-wood of *Guaiacum officinale*. This wood is heavier than water and comes in the form of billets and logs, covered with a yellowish sap-wood; it is very hard and of a brown or greenish-brown color. Splits irregularly and splintery. Heat develops a balsamic odor; and the taste is slightly acrid, but not unpleasant. Among its constituents are 20 to 25 per cent. of resin (*resina guaiaci*), and 3 to 4 per cent. of an extractive matter soluble in water. It is found in the shops in the form of raspings or filings.

OFFICIAL PREPARATION.—Resina Guaiaci.

THERAPEUTIC ACTION.—Alterative, emmenagogue, and diaphoretic.







Dose.—Adult, 2.0 to 8.0 gm. (gr. xxx to 3ij). Horse, 15.0 to 25.0 gm. (3ss to 3vj). Dog and cat, 1.0 to 4.0 gm. (gr. xv to 3j), in the form of a decoction.

### GUAIACI RESINA.

RESIN OF GUAIAIC, Guaiac.

DESCRIPTION.—A resin obtained from the wood of *Guaiacum officinale*. It is obtained by making incisions through the bark and allowing the juice to exude and harden or by melting it from the heart-wood by heat. Irregular masses of a greenish or reddish-brown color, having a glossy lustre when broken. It has a feebly aromatic odor and an acrid, not unpleasant taste. The powder is grayish, turning green on exposure. Soluble in strong alkaline solutions and alcohol. Guaiac resin contains *guaiacic acid*, 10 per cent. of betaresin, some gum, and ash.

OFFICIAL PREPARATIONS.—*Pilulæ Antimonii Composita*, *Tinctura Guaiaci*, and *Tinctura Guaiaci Ammoniata*.

THERAPEUTIC ACTION.—Stimulant, diaphoretic, alterative, and emmenagogue.

Dose.—*Tinctures*.—Adult, 4.0 to 8.0 c. c. (f3j to f3ij). Horse, 15.0 to 25.0 c. c. (f3ss to f5vj). Dog and cat, 2.0 to 6.0 c. c. (mxxx to f3iss).

### HÆMATOXYLON.

HÆMATOXYLON, Logwood. Natural order, LEGUMINOSÆ. Habitat, Central America.

DESCRIPTION.—The heart-wood of *Hæmatoxylon Campechianum*. Logwood is in the form of heavy, hard logs, which split irregularly; color is blackish-purple, with a greenish, metallic luster. Internally it is a brown-red color and finely porous; odor is peculiar and disagreeable; taste is sweetish and astringent. That found in the stores is in the form of chips or shavings; it is not so hard as guaiac-wood. An alkaloid, *hæmatoxyline*, is found in the wood, besides tannin, fat, and resin. The alkaloid is a crystalline principle which, when pure, is

colorless and has the formula  $C_{16}H_{14}O_6$ ; it is sweet, soluble in water and alcohol, and sunlight turns it red, while alkalies cause it to assume a purple color.

OFFICIAL PREPARATION.—*Extractum Hæmatoxyli*.

THERAPEUTIC ACTION.—Astringent and tonic (?).

DOSE.—*Extract*.—Adult, 0.6 to 2.0 gm. (gr. x to gr. xxx). Horse, 2.0 to 15.0 gm. (3ss to 3iv). Dog and cat, 0.3 to 1.0 gm. (gr. v to gr. xv).

### HEROIN.

DIACETYLMORPHINE.

DESCRIPTION.—Heroin is a derivative of morphine. It is seen in the form of a white, inodorous, crystalline powder; the taste is somewhat bitter and the reaction is alkaline. The alkaloid is insoluble in water, but is readily dissolved in any weak acidulous solution. The salt of the alkaloid heroin, the hydrochlorate, is soluble in 2 parts of water. It is a white, crystalline powder having no odor and the characteristic bitter taste of the alkaloid.

THERAPEUTIC ACTION.—Respiratory stimulant, expectorant, general motor depressant, and slightly analgesic.

DOSE.—Adult, 0.008 to 0.03 gm. (gr.  $\frac{1}{8}$  to gr.  $\frac{1}{2}$ ). Horse, 0.06 to 0.5 gm. (gr. j to gr. vij). Dog, 0.002 to 0.01 gm. (gr.  $\frac{1}{32}$  to gr.  $\frac{1}{6}$ ). Cat, 0.001 to 0.002 gm. (gr.  $\frac{1}{64}$  to gr.  $\frac{1}{32}$ ). This drug may be administered in powder, pill, or tablet form, or in solution.

### HUMULUS.

HOPS. Natural order, URTICACEÆ. Habitat, north temperate zone.

DESCRIPTION.—The strobiles of *Humulus lupulus*, the hopvine. They are composed of thin, membranous, leaflike scales, or bracts, inserted in a thin, hairy head. They are ovate in shape, about 3 centimetres ( $1\frac{1}{4}$  inches) in length. Odor is narcotic, fragrant, and aromatic; taste is bitter, aromatic, and astringent. *Lupulin*, a fine greenish- or brownish- yellow powder, is found covering all parts of the strobile, thickest near the





central receptacle, or head. Constituents are resin, tannin, and volatile oil.

OFFICIAL PREPARATIONS.—*Hops*.—Tinctura Humuli.

*Lupulin*.—Extractum Lupulini Fluidum and Oleoresina Lupulini.

THERAPEUTIC ACTION.—Stimulant, tonic, sedative, and anodyne.

DOSE.—*Hops*.—Adult, 2.0 to 20.0 gm. (3ss to 3v). Horse, 20.0 to 40.0 gm. (3v to 3x). Dog and cat, 2.0 to 10.0 gm. (3ss to 3iiss).

*Lupulin*.—Adult, 0.2 to 1.0 gm. (gr. iij to gr. xv). Horse, 10.0 to 20.0 gm. (3iiss to 3v). Dog and cat, same as adult doses.

## HYDRARGYRUM.

### Mercury and its Preparations.

MERCURY, Quicksilver (Hg). Sp. gr., 13.5.

DESCRIPTION.—Bright, shiny liquid. Boils at 350° C., and congeals to a soft solid at —4° C.; it then resembles heated lead. Dissolves in boiling sulphuric acid and cold nitric acid. Sublimes readily. Water and alcohol have no action on it.

PREPARATION.—From bisulphuret of mercury or native cinnabar. All processes depend upon its volatilization and condensation. Sent to market in bottles containing about thirty kilogrammes.

### Hydrargyri Chloridum Corrosivum.

CORROSIVE SUBLIMATE, Bichloride or Corrosive Chloride of Mercury (HgCl<sub>2</sub>). Sp. gr., 5.2.

DESCRIPTION.—It is a sublimate. Colorless crystals, or white semitransparent crystalline masses. Air does not affect it. Almost odorless; acrid, metallic taste; sublimes at 93.3° C. Soluble in 16 parts of cold water, 3 parts of boiling water, 2 parts of alcohol, and 3 parts of ether. Best antiseptic known. Do not lay instruments in its solution.

**THERAPEUTIC ACTION.**—Besides having the action of mercury, it is a caustic, which, unlike arsenous acid, acts only on diseased tissue.

**DOSE.**—Adult, 0.002 to 0.006 gm. (gr.  $\frac{1}{30}$  to gr.  $\frac{1}{10}$ ). Horse and cattle, 0.3 to 0.5 gm. (gr. v to gr. viij). Dog, 0.002 to 0.008 gm. (gr.  $\frac{1}{30}$  to gr.  $\frac{1}{8}$ ).

#### **Hydrargyri Chloridum Mite.**

**MILD MERCUROUS CHLORIDE** ( $\text{Hg}_2\text{Cl}_2$ ). Sp. gr., 7.2.

**SYNONYMS.**—Calomel, mild chloride of mercury, subchloride of mercury.

**PREPARATION.**—From mercury, sulphate of mercury, salt, and water, and is obtained in the powdered form by the rapid condensation of the vapors of mercurous chloride.

**DESCRIPTION.**—Is a sublimate, and when first sublimed resembles arsenous acid. Hard, vitreous mass, but found in the shops in the form of a white, fine powder. Odorless and tasteless. Insoluble in alcohol, ether, and water. The hard cakes, when scratched with a pin, show a yellow streak. When given for a length of time causes extreme hyperpurgation in the horse.

**OFFICIAL PREPARATIONS.**—*Pilulæ Catharticæ Composita*, *Pilulæ Antimonii Composita*.

**DOSE.**—*Purgative.*—Adult, 0.03 to 1.0 gm. (gr. ss to gr. xv). Horse, 2.0 to 4.0 gm. (3ss to 3j). Dog, 0.006 to 0.03 gm. (gr.  $\frac{1}{10}$  to gr.  $\frac{1}{2}$ ).

*Vermifuge* for horse, in 4.0 gm. (3j) doses, with 4.0 gm. (3j) of oleoresin of male fern and 16.0 gm. (3iv) of aloes, combined with 4.0 gm. (3j) of ginger in a bolus. Repeated every morning for four mornings, followed by castor-oil. Dog and man, 1 to 3 compound cathartic pills.

#### **Hydrargyri Iodidum Rubrum.**

**RED MERCURIC IODIDE**, Biniodide of Mercury ( $\text{HgI}_2$ ). Sp. gr., 6.6.



## Take Advice

**THE PHYSICIAN'S  
ALL-REQUISITE  
TIME-&LABOR-SAVING  
ACCOUNT-BOOK** will

relieve your book-keeping  
of half of its complexity  
and two-thirds the labor.







**DESCRIPTION.**—Beautiful, bright-red powder; taste, rather saline. Soluble in hydrochloric-acid and potassium-iodide solution. Insoluble in water, slightly soluble in alcohol. Powerful irritant poison. Used as a blister on bony enlargement. Equal parts of cerate of cantharides and red-iodide-of-mercury ointment form a good vesicant.

**PREPARATION.**—Corrosive mercuric chloride, 40.0; potassium iodide, 50.0; distilled water, q. s.

**DOSE.**—Same as those for corrosive chloride.

### **Hydrargyri Oxidum Flavum.**

#### **YELLOW MERCURIC OXIDE.**

**DESCRIPTION.**—Color like yelk of an egg; an amorphous powder. Chemically not different from red oxide, when heated it changes from yellow to red. Ointment used as an application for sore eyelids.

**PREPARATION.**—Prepared by oxidizing corrosive chloride of mercury with soda.

**OFFICIAL PREPARATION.** — Unguentum Hydrargyri Oxidi Flavi.

### **Hydrargyri Oxidum Rubrum.**

**RED MERCURIC OXIDE, Red Oxide of Mercury, Red Precipitate.**

**DESCRIPTION.**—Brilliant, shiny red, crystalline scales; acrid, metallic taste and odorless. Only slightly soluble in water and alcohol, but freely in hydrochloric and nitric acids.

**OFFICIAL PREPARATION.** — Unguentum Hydrargyri Oxidi Rubri. Local stimulant and caustic for indolent ulcers, and applied externally as an ointment for the destruction of parasites and for its counter-irritant and absorbent action.

### **Hydrargyri Subsulphas Flavus.**

#### **YELLOW SUBSULPHATE OF MERCURY, Turpeth Mineral.**

**DESCRIPTION.**—A heavy, yellow powder; no odor; acrid taste. Sparingly soluble in cold water and alcohol; freely soluble in nitric or hydrochloric acid.

PREPARATION.—Mercury, 100.0; sulphuric acid, 30.0 c. c.; nitric acid, 25.0 c. c.; water, q. s.

Strength for ointment for the eyes, 4.0 to 32.0 of lard.

### **Hydrargyrum Cum Creta.**

MERCURY WITH CHALK.

SYNONYM.—Gray powder.

PREPARATION.—By triturating Hg, 38.0; prepared chalk, 57.0; clarified honey, 10.0; water, q. s. ad 100 gm.

DESCRIPTION.—Smooth, gray powder, insoluble in alcohol and water. Official when globules of Hg cannot be detected with a glass of 10 diameters. Every 10.0 gm. (3iiss) contains 3.8 gm. (gr. lvij) of mercury.

THERAPEUTIC ACTION.—All mercurial preparations are alterative, absorbent, laxative, and cholagogue. Mercury with chalk has a special antacid action, due to the chalk.

DOSE.—Adult, 0.13 to 0.6 gm. (gr. ij to gr. x). Calf and foal, 0.33 to 1.0 gm. (gr. v to gr. xv). Dog, 0.06 to 0.2 gm. (gr. j to gr. iij).

### **Liquor Arseni et Hydrargyri Iodidi.**

SOLUTION OF ARSENIC AND MERCURIC IODIDE, Donovan's Solution.

DESCRIPTION.—Aqueous solution of iodide of arsenic and red iodide of mercury. A clear, pale-yellowish, odorless liquid, having a slightly disagreeable metallic taste.

PREPARATION.—Prepared by dissolving arsenic iodide (10.0 gm.) and mercuric iodide (10.0 gm.) in sufficient water to make 1000.0 c. c.

DOSE.—Adult, 0.05 to 0.6 c. c. (mj to mx). Horse, 15.0 to 45.0 c. c. (f3ss to f3iss). Dog, 0.1 to 0.6 c. c. (mij to mx). Needs no dilution.

### **Liquor Hydrargyri Nitratis.**

SOLUTION OF MERCURIC NITRATE. Sp. gr., 2.16.





**DESCRIPTION.**—Dense, transparent, canary-colored liquid, caustic taste, and odor like nitric acid; containing 60 per cent. mercuric nitrate and 11 per cent. nitric acid.

**PREPARATION.**—Red mercuric oxide, 40.0; nitric acid, 45.0; water, 15.0. Mix nitric acid and water, and dissolve the mercury salt in this solution.

**THERAPEUTIC ACTION.**—Caustic and escharotic.

### **Lotio Hydrargyri Flava.**

**YELLOW WASH** (unofficial). For glanderous abscesses, etc.

**PREPARATION.**—Bichloride of mercury, 1.3; mixed with 240 c. c. (Oss) of lime-water. Clear solution with a yellow precipitate.

### **Lotio Hydrargyri Nigra.**

**BLACK WASH** (unofficial). Calomel, 4.0; lime-water, 480 c. c. Wash for ulcers and sores. Clear solution with a black precipitate of black oxide of mercury.

### **Massa Hydrargyri.**

**MERCURIAL MASS, Blue Pill, or Blue Mass.**

**DESCRIPTION.**—Bluish sticky mass; pleasant odor; sweet taste.

**PREPARATION.**—Mercury, 33.0; glycyrrhiza, 5.0; althæa, 25.0; glycerin, 3.0; honey of roses, 3.0 by trituration.

**DOSE.**—Adult, 0.13 to 0.6 gm. (gr. ij to gr. x). Horse, 2.0 gm. (gr. xxx). Dog, 0.35 gm. (gr. vj).

### **Unguentum Hydrargyri.**

**MERCURIAL OINTMENT, Blue Ointment.**

**DESCRIPTION.**—Pale-blue colored ointment, which becomes dark on standing. Used locally. Same effect, by being absorbed, as when other mercurials are given internally.

PREPARATION.—Mercury, 50.0; lard, 25.0; suet, 23.0; oleate of mercury, 2.0. Triturate mercury and oleate of mercury and mix with melted lard and suet.

#### **Unguentum Hydrargyri Nitratis.**

OINTMENT OF MERCURIC NITRATE, Citrine Ointment.

DESCRIPTION.—A glossy, lemon-yellow colored ointment, having a mild, nitrous odor. It becomes darkened on exposure to air and is about the consistence of petrolatum.

PREPARATION.—By making a solution of mercury in nitric acid and adding it to lard-oil.

THERAPEUTIC ACTION.—Parasiticide.

#### **HYDRASTIS.**

HYDRASTIS, Golden Seal. Natural order, RANUNCULACEÆ. Habitat, Eastern United States.

DESCRIPTION.—The rhizome and rootlets of *Hydrastis Canadensis*. It is about 4 centimetres ( $1\frac{3}{5}$  inches) long and 6 millimetres ( $\frac{1}{5}$  inch) in diameter; oblique, with short branches and longitudinal wrinkles; brown-gray externally; breaks with a short, waxy fracture; internally it is a bright reddish yellow and has a large, pithy center. The taste is bitter and the odor slightly aromatic. The rootlets are thin, brittle, and about 12 centimetres (5 inches) long; they have a thick, yellow bark and a woody center. The constituents are *berberine* to the amount of from 3 to 4 per cent.; this alkaloid is soluble in alcohol and slightly so in cold water, but is insoluble in ether. Salts of berberine are of a bright-yellow color. *Hydrastine* is another alkaloid found in hydrastis, and is soluble in alcohol and ether, but most soluble in chloroform; its salts are white and bitter.

OFFICIAL PREPARATIONS.—Extractum Hydrastis Fluidum, Glyceritum Hydrastis, and Tinctura Hydrastis.

THERAPEUTIC ACTION.—Stomachic, ecboic, and alterative.

DOSES.—*Fluid Extract*.—Adult, 0.3 to 3.0 c. c. (mv to mxlvij). Horse, 30.0 to 60.0 c. c. (f3j to f3ij). Dog and cat, 1.0 to 3.0 c. c. (mxv to mxlv).







**HYOSCYAMUS.**

**HYOSCYAMUS**, Henbane. Natural order, **SOLANACEÆ**.  
Habitat, Europe and Asia.

**DESCRIPTION.**—Dried leaves and flowering tops of *Hyoscyamus niger*. Ovate and oblong, 8 to 10 inches long by 3 to 4 inches wide. Edges toothed; teeth large and triangular. Midrib large and prominent. Odor pronounced, heavy, and tobacco-like; taste is bitter and acrid. Leaves contain a large percentage of nitrate of potassium. Two alkaloids, hyoscyne and hyoscyamine, are found.

**OFFICIAL PREPARATIONS.**—Extractum Hyoscyami, Extractum Hyoscyami Fluidum, and Tinctura Hyoscyami.

**THERAPEUTIC ACTION.**—Mydriatic, narcotic, anodyne, and hypnotic. Very much like belladonna.

**DOSE.**—*Tincture.*—Adult, 2.0 to 8.0 c. c. (mxxx to f̄ij).  
Dog, 4.0 to 8.0 c. c. (f̄ij to f̄ij).

*Fluid Extract.*—Horse, 15.0 to 30.0 c. c. (f̄jss to f̄j).

Alkaloids are generally administered hypodermically.

**ICHTHYOLUM.**

**ICHTHYOL** (unofficial).

**DESCRIPTION.**—It is a thick, tarlike, dark, reddish-brown liquid, with a heavy, penetrating, unpleasant, fishy odor and a hot, bituminous taste. It is soluble in water, glycerin, alcohol, and the fixed and volatile oils.

**PREPARATION.**—Ichthyol is prepared by distilling a bituminous, sulphurous quartz, containing deposits of fossil fish, with sulphuric acid and removing the sulphurous acid by means of chloride of sodium. During the process sulphonic acid separates out, and when saturated with ammonia forms this preparation.

**CONSTITUENTS.**—Volatile, odorous oil, and about 10 per cent. of sulphur.

**THERAPEUTIC ACTION.**—Alterative and discutient, principally used only locally. Nonpoisonous.

Dose.—Adult, 0.2 to 0.3 gm. (gr. iij to gr. v). Horse, 4.0 to 8.0 gm. (3j to 3ij). Dog, 0.2 to 0.3 gm. (gr. iij to gr. v).

### IODOFORMUM.

IODOFORM ( $\text{CHI}_3$ ). Sp. gr., 2.0.

DESCRIPTION.—Lemon-colored, hexagonal crystals, strong odor of iodine and saffron. Taste, sweetish and unpleasant. Insoluble in water. Soluble in alcohol and ether. Volatile. Soft, velvety feeling. Smell may be partially disguised by mixing it with from 10 to 20 per cent. of finely powdered roasted coffee or tonka bean. Poisonous to dog and man. In dog produces narcosis.

THERAPEUTIC ACTION.—Antiseptic, deodorizer, and local anæsthetic. Rarely given internally.

ANTIDOTE.—Nitrate of potassium: hourly, in doses of from 0.6 to 1.3 gm. (gr. x to gr. xx).

### IODOL.

IODOL, Tetraiodopyrrol (unofficial).

DESCRIPTION. — A light-brown, crystalline powder. No taste, slight odor. Used same as iodoform, but less irritant and odor not so unpleasant. Can be given internally. Odor somewhat resembles that of garden-thyme. Insoluble in water. Soluble in alcohol, chloroform, and ether.

PREPARATION.—By the action of iodine on pyrrol in alcoholic solution.

Dose.—Adult, 0.02 to 0.06 gm. (gr.  $\frac{1}{8}$  to gr. j). Horse, 0.66 to 2.0 gm. (gr. x to 3ss). Dog, 0.02 to 0.06 gm. (gr.  $\frac{1}{8}$  to gr. j).

### IODUM.

IODINE (I). Sp. gr., 4.9. The specific gravity of the vapor is the heaviest known: 8.9.

DESCRIPTION.—Somewhat opaque. Iodine is one of the nonmetallic elements. Pungent, chlorinelike odor; hot, biting





taste; volatile at ordinary temperature. Leaves a brown stain on the skin, which shortly disappears, due to absorption and volatilization. Forms salts with the metals. Soluble in alcohol and ether. Water dissolves 1 in 1000. Strikes a blue color with solutions containing starch. Found in codliver-oil, sponge, oysters, etc., and in certain mineral springs.

PREPARATION.—From *kelp*, ashes of seaweed. Contains 1 part of iodine in 224. The kelp is first lixiviated, the lye is concentrated until a pellicle forms on the surface, and then cooled. Sulphuric acid is added in excess. This solution is then distilled with deutoxide of manganese, and the iodine is condensed in a series of glass receivers. Purified by resublimation.

OFFICIAL PREPARATIONS.—Tinctura Iodi, Unguentum Iodi, and Liquor Iodi Compositus.

THERAPEUTIC ACTION.—Locally, an irritant, caustic, and absorbent. Internally, absorbent and alterative. Pure iodine is rarely used internally except when combined with iodide of potassium.

DOSE.—Adult, 0.015 to 0.06 gm. (gr.  $\frac{1}{4}$  to gr. j). Horse and cattle, 2.0 to 4.0 gm. (gr. xxx to 3j). Dog, 0.1 to 0.3 gm. (gr. ij to gr. v). In solution with potassium iodide in pill or bolus.

### Arseni Iodidum.

IODIDE OF ARSENIC ( $\text{AsI}_3$ ).

DESCRIPTION.—Amorphous mass, orange red. Soluble in water, volatilizes by heat, with odor of iodine. Metallic taste; brown stain to skin. Used in chronic skin diseases.

PREPARATION.—Arsenic, 60 parts, and iodine, 300 parts; triturated, put in a flask, heated until it liquefies, and poured on a marble slab.

DOSE.—Adult, 0.003 to 0.006 gm. (gr.  $\frac{1}{20}$  to gr.  $\frac{1}{10}$ ). Horse, 0.06 to 0.32 gm. (gr. j to gr. vj). Cattle, 0.13 to 0.52 gm. (gr. ij to gr. viij). Dog, 0.004 gm. (gr.  $\frac{1}{16}$ ).

**Liquor Iodi Compositus.**

COMPOUND SOLUTION OF IODINE, Lugol's Solution.

PREPARATION.—Iodine, 5.0 gm.; iodide of potassium, 10.0 gm.; and water, q. s. to make 100.0 c. c. Convenient for internal administration of iodine in a watery solution.

DOSE.—Adult, 0.18 to 0.6 c. c. (*mijj* to *mx*). Horse, 7.5 to 15.0 c. c. (*f3ij* to *f3iv*). Dog, 0.12 to 0.6 c. c. (*mij* to *mx*). Used internally principally.

**Sulphuris Iodidum.**

IODIDE OF SULPHUR, Bisulphuret of Iodine ( $I_2S$ ).

DESCRIPTION.—Irregular mass. Steel-black color, crystalline appearance, characteristic odor of iodine. Soluble in 60 parts of glycerin, insoluble in water and alcohol. Volatilizes by heat, iodine escaping in fumes, leaving sulphur.

PREPARATION.—Iodine, 80.0; sulphur, 20.0; triturated until mixed; put in flask and heated until it liquefies, cooled, flask broken, and contents removed.

**Syrupus Ferri Iodidi.**

SYRUP OF FERROUS IODIDE, Syrup of Iodide of Iron.

DESCRIPTION.—Transparent, syrupy liquid; pale green; no odor; sweet, metallic taste; should not strike blue with starch test-solution.

PREPARATION. — Iron wire, 25.0; iodine, 83.0; distilled water and syrup, q. s. ad 1000.0 c. c. Iron and iodine mixed with water until odor of iodine is lost, then filtered into the syrup.

THERAPEUTIC ACTION. — Tonic, alterative, diuretic, and some emmenagogue properties.

DOSE.—Adult, 0.6 to 2.0 c. c. (*mv* to *mxxx*). Horse and cattle, 15.0 to 30.0 c. c. (*f3ss* to *f3j*). Dog, 1.5 to 3.0 c. c. (*mxxiv* to *mxlvij*). Always dilute immediately before giving.







**Tinctura Iodi.**

TINCTURE OF IODINE. Externally only.

DESCRIPTION.—Deep brownish-black volatile liquid.

PREPARATION.—By dissolving 7 parts of iodine in 100 parts of alcohol.

THERAPEUTIC ACTION.—Same as iodine.

**Unguentum Iodi.**

IODINE OINTMENT.

PREPARATION.—Iodine, 4.0; iodide of potassium, 1.0; water, 2.0; benzoinated lard, q. s. ad 100.0 gm. Convenient form for local application of iodine.

**Unguentum Sulphuris Iodidi.**

Unofficial preparation.

PREPARATION.—Sulphur iodide, 4.0; benzoinated lard, 30.0. Used locally.

**IPECACUANHA.**

IPECAC. Natural order, RUBIACEÆ. Habitat, South America, in the latitude of the equator.

DESCRIPTION.—Root of *Cephaelis Ipecacuanha*. Very thin, about  $\frac{1}{16}$  inch in diameter. Thick, brown bark; inside woody portion, a light-straw color. Root is ringed, giving it the appearance of a string of beads. Powder a grayish-fawn color. Nauseous odor and bitter nauseous taste. Water, alcohol, and wine extract the properties; too great a heat destroys them.

OFFICIAL PREPARATIONS. — Extractum Ipecacuanhæ Fluidum and Pulvis Ipecacuanhæ et Opii (Dover's Powder).

ACTIVE PRINCIPLE.—Emetia. White, colorless, bitter powder precipitated by gallic and tannic acids.

THERAPEUTIC ACTION. — Large doses, emetic. Medium doses, diaphoretic and expectorant. Small doses, gastric stimulant and antemetic.

Dose.—*Expectorant*.—Adult, 0.01 to 0.06 gm. (gr.  $\frac{1}{8}$  to gr. j). Horse, 4.0 to 8.0 gm. (3j to 3ij).

*Emetic*.—Adult, 1.0 to 2.0 gm. (gr. xv to gr. xxx). Dog, 0.66 to 2.0 gm. (gr. x to gr. xxx). Cat, one-half this dose.

*Diaphoretic*.—Adult, 0.6 gm. (gr. x). Horse, 4.0 to 12.0 gm. (3j to 3iij). Dog, 0.6 to 1.0 gm. (gr. x to gr. xv).

### JALAPA.

JALAP. Natural order, CONVOLVULACEÆ. Habitat, Mexico.

DESCRIPTION.—The tuber of *Ipomœa Jalapa*, pear shape, varying in size; more or less wrinkled; dark brown externally; hard, compact, and starchy. Internally, pale-brown color; very little fiber. Smoky odor; sweet, acrid, taste.

OFFICIAL PREPARATIONS.—Extractum Jalapæ Alcoholicum, Pulvis Jalapæ Compositus, and Resina Jalapæ.

THERAPEUTIC ACTION.—Active hydragogue cathartic, accompanied by considerable tenesmus.

Dose.—Adult, 0.3 to 2.0 gm. (gr. v to gr. xxx). Horse, 4.0 to 8.0 gm. (3j to 3ij). Pig, 4.0 to 16.0 gm. (3j to 3iv). Cat, 2.0 to 4.0 gm. (gr. xxx to 3j), better combined with calomel.

### JUNIPERUS.

JUNIPER-BERRIES. Natural order, CONIFERÆ (pine family). Habitat, Northern Hemisphere.

DESCRIPTION.—Fruit of *Juniperus communis*. Globular, tricelled, berrylike fruit; wrinkled and the size of a shoe-button; aromatic, piny taste. Externally, purple; internally, greenish brown. Activity due to the volatile oil. Water and alcohol extract the virtues. Oil is prepared by distilling the crushed, unripe fruit.

THERAPEUTIC ACTION.—Stimulant, diuretic. It is an irritant to the kidneys. The volatile oil is used, which has all the action of the drug and is not so bulky.





Dose.—*Fruit*.—Horse and cattle, 32.0 to 128.0 c. c. (℥j to ℥iv).

*Oil*.—Adult, 0.1 to 0.25 c. c. (mij to mv). Horse and cattle, 3.0 to 7.5 c. c. (mxlvij to f3ij). Dog, 0.33 to 0.66 c. c. (mv to mx), every three or four hours.

### KINO.

KINO. Natural order, LEGUMINOSÆ. Habitat, Malabar.

DESCRIPTION.—Kino is the inspissated juice of *Pterocarpus marsupium*. It is seen in small, shining pieces, irregular in size and shape, of a reddish-brown color. It pulverizes readily and yields a powder much lighter in color than are the masses. It is odorless, but has a slightly bitter, strongly astringent taste. Kino is sparingly soluble in cold water, more freely so in boiling water. Both alcohol and water extract the active principles of the drug. Besides *kinotannic acid* it contains a small amount of resin and some extractive matter and gum. The addition of alkalies increases its solubility in water. Kino is incompatible with the same line of drugs and preparations as tannin on account of the large percentage of the latter it contains. There are a number of varieties, but the best is the East Indian, from Hindustan and Malabar.

OFFICIAL PREPARATION.—Tinctura Kino.

THERAPEUTIC ACTION.—Astringent.

Dose.—Adult, 0.5 to 2.0 gm. (gr. viij to gr. xxx). Horse, 15.0 to 30.0 gm. (℥ss to ℥j). Cattle, double the dose for the horse. Dog and cat, 0.3 to 2.0 gm. (gr. v to gr. xxx). Foal, calf, and sheep, 15.0 to 30.0 c. c. (f℥ss to f℥j) of tincture.

### KRAMERIA.

KRAMERIA, Rhatany. Natural order, POLYGALACEÆ. Habitat, Peru and Bolivia.

DESCRIPTION.—The root of *Krameria triandra*, about 25 millimeters (1 inch) thick; has several knotty heads and is

branched on the under side, the branches being thin and long. Rhatany-bark is of a dark, rust-brown color; has a strongly astringent taste, but no odor. The bark is thick and smooth, and is sometimes seen covered with scales. The woody portion of the root is lighter in color, tough, and nearly tasteless. The root contains 20 per cent. of *kramerotannic acid* and some other substances of no therapeutic value.

OFFICIAL PREPARATIONS.—Extractum Krameriae, Extractum Krameriae Fluidum, and Tinctura Krameriae.

THERAPEUTIC ACTION.—Astringent.

DOSE.—Same as kino.

### LINUM.

LINUM, Linseed, Flaxseed. Habitat, Levant and southern Europe. Natural order, LINEÆ.

DESCRIPTION.—Seeds of *Linum usitatissimum*. Oblong ovate in shape, about 5 millimetres ( $\frac{1}{8}$  inch) long, obliquely pointed at one end, rounded at the other; testa brown and glossy, inodorous, mucilaginous, oily, and bitter. Contains 30 to 35 per cent. of fixed oil and 15 per cent. of mucilage, besides proteids (25 per cent.), resin, wax, and sugar.

THERAPEUTIC ACTION.—Demulcent.

DOSE.—*Ad libitum*.

### Lini Farina.

FLOUR OF LINSEED, Ground Flaxseed.

DESCRIPTION.—A meal prepared by grinding the seeds of *Linum usitatissimum*. Gray, oily to the touch; when mixed with hot water makes a milky paste. Good meal should stick together when tightly squeezed. *Cake-meal* is flaxseed-meal from which the oil has been extracted, and is not so heating as flaxseed. The cake is used largely as a nourishing food for horses and cattle.

THERAPEUTIC ACTION.—Demulcent and nutrient. Linseed-tea is a fine vehicle for other medicines, and should be made from the whole seeds.







**Oleum Lini.**

LINSEED-OIL. Sp. gr., 0.93 to 0.94.

DESCRIPTION.—Pleasant, mildly acting purgative. It is a yellowish-brown oily liquid having a slight odor and a bland taste. It oxidizes on exposure to the air, becoming thicker and rancid. Soluble in 10 parts of alcohol and freely in ether, chloroform, and oil of turpentine. Good vehicle for aloes and colic draught for the horse, where laxative action is needed.

DOSE.—Horse, 240.0 to 480.0 c. c. (f̄viiij to f̄xxvj). Cattle, 480.0 to 960.0 c. c. (f̄xxvj to f̄xxxij). Dog, 30.0 to 60.0 c. c. (f̄ij to f̄ij).

**LOBELIA.**

LOBELIA, "Indian tobacco." Natural order, LOBELIACEÆ. Habitat, United States.

DESCRIPTION.—Leaves and tops of *Lobelia inflata*, an annual, growing to the height of about 1 foot. Leaves are alternate, oval, serrate, and hairy. The fruit is an oval, striped capsule crowned with a permanent calyx, and contains two cells filled with small, brownish seeds  $\frac{1}{30}$  inch long and  $\frac{1}{75}$  inch broad. Lobelia should be collected in August or September, when the capsules are most numerous. It has an odor at once irritant and narcotic; taste is hot and acrid, somewhat resembling that of tobacco. Water and alcohol extract its properties. It has been found to contain an odorless, volatile principle; a yellow, liquid alkaloid called *lobeline*; lobelic acid, gum, resin, fixed oil, and salts of iron, lime, and potassium. Seeds are twice as strong as other parts of the plant.

OFFICIAL PREPARATIONS. — Extractum Lobeliæ Fluidum and Tinctura Lobeliæ.

THERAPEUTIC ACTION.—Emetic, cathartic, diaphoretic, expectorant, and antispasmodic.

TOXICOLOGY. — Symptoms following a poisonous dose of lobelia are prostration, nausea, vomiting, and more or less generalized abdominal pain, death being caused by its paralyzant effect on the medullary centres of respiration.

Dose.—*Fluid Extract*.—Adult, 0.055 to 0.28 c. c. (*mj* to *mv*). Emetic dose for adult, 0.8 c. c. (*mxv*). Horse, 1.3 to 4.0 c. c. (*mxx* to *f3j*). Dog and cat, 0.055 to 0.28 c. c. (*mj* to *mv*).

### MAGNESIA PONDEROSA.

MAGNESIA, Heavy Magnesia ( $MgO$ ). There are two kinds of magnesia official: the *heavy* and the *light*. They differ in their density and in the fact that the former does not readily unite with water to form a hydrate.

DESCRIPTION.—The heavy variety is in a white, dense, very fine powder, having an earthy taste. It is almost insoluble in water, insoluble in alcohol, and has a faintly alkaline reaction.

THERAPEUTIC ACTION.—Cathartic and antacid.

Dose.—Adult, 4.0 to 8.0 gm. (*3j* to *5ij*). Small animals, same dose.

### MAGNESII SULPHAS.

MAGNESIUM SULPHATE, Epsom Salt ( $MgSO_4 + 7H_2O$ ).

DESCRIPTION.—Small, colorless, transparent, rhombic or quadrangular prisms, when not granulated; has a bitter, nauseous, saline taste. Efflorescent even in dry air. Crystals contain almost 52 per cent. of water of crystallization, which it loses when subjected to a heat of from  $200^{\circ}$  to  $238^{\circ}$  C. ( $392^{\circ}$  to  $460.4^{\circ}$  F.). Soluble in  $1\frac{1}{2}$  parts of cold water and three-fourths its weight of boiling water. Alcohol will not dissolve it. By heating the crystals to  $52^{\circ}$  C. ( $125.6^{\circ}$  F.), it falls in the form of a fine, white powder.

PREPARATION.—Native hydrate of magnesia, *magnesite*, is reduced to a fine powder and saturated with sulphuric acid; this mass is then dried and calcined at a red heat, to convert any iron into red oxide; it is then dissolved and sulphuret of lime added to remove all iron present. The resultant salt is further purified by solution and recrystallization, repeated three times.

THERAPEUTIC ACTION.—Mild, safe hydragogue cathartic. One of the best purgatives for cattle.





**DOSE.**—Adult, 15.0 to 30.0 gm. (ȝss to ȝj). Horse (purgative), 300.0 to 500.0 gm. (ȝix to lbj). Horse (laxative), 60.0 to 120.0 gm. (ȝij to ȝiv). Cattle (purgative), 500.0 to 1000.0 gm. (lbj to lbij). Cattle (laxative), 90.0 to 120.0 gm. (ȝiij to ȝiv). Calf, 8.0 to 12.0 gm. (ȝij to ȝiij). Sheep, 120.0 to 180.0 gm. (ȝiv to ȝvj). Dog and cat, 4.0 to 15.0 gm. (ȝj to ȝiv). In all cases give this drug well diluted with water.

### MATRICARIA.

**MATRICARIA**, German Chamomile. Natural order, **COMPOSITÆ**. Habitat, Europe and Asia.

**DESCRIPTION.**—Flowers of *Matricaria Chamomilla*. Conical, hollow, naked receptacle bordered by toothed florets. Small, yellowish flowers; taste, aromatic and bitter. Odor like that of field daisies.

**THERAPEUTIC ACTION.**—Stomachic, carminative, and aromatic bitter tonic.

**DOSE.**—Infusion can be given *ad libitum*.

### MEL.

**HONEY.**

**DESCRIPTION.**—An amber-colored or white saccharine liquid deposited in the comb by *Apis mellifica*; class, Insecta; order, Hymenoptera. Sweet taste and pleasant odor. Purified by heating, skimming, and straining.

**OFFICIAL PREPARATION.**—Mel Despumatum.

**THERAPEUTIC ACTION.**—Laxative and demulcent.

### MENTHA PIPERITA.

**PEPPERMINT.** Natural order, **LABIATÆ**. Habitat, Great Britain.

**DESCRIPTION.**—Leaves and tops of *Mentha piperita*. Quadrangular stems, which are characteristic of the mint family.

Plants 2 feet high; leaves ovate and pointed, smoother above than below, dark on top, pale beneath. Odor camphoraceous and balsamic. Taste warm and aromatic, depending upon volatile oil.

OFFICIAL PREPARATIONS.—Spiritus Menthæ Piperitæ and Oleum Menthæ Piperitæ.

THERAPEUTIC ACTION.—Antiseptic, carminative, and stimulant. Oil is a paralyzer to sensory nerve-endings.

DOSE.—Oil.—Adult, 0.06 to 0.3 c. c. (mj to mv). Horse, 1.25 to 2.0 c. c. (mxx to mxxxij).

### MENTHA VIRIDIS.

SPEARMINT, Green Mint.

DESCRIPTION.—Differs from *Mentha piperita* in shape of leaves, which are lanceolate and naked. Taste not so pungent and sweeter. In other respects same as latter.

### MENTHOL.

MENTHOL ( $C_{10}H_{18}OH$ ). A camphorlike, crystalline principle obtained from volatile oil of peppermint (*oleum mentha piperitæ*) by fractional distillation.

DESCRIPTION. — Menthol is a stearopten in the form of colorless, prismatic, needle-shaped crystals, and has the strong odor and taste of mint. Slightly soluble in water; freely so in alcohol, ether, chloroform, and all alcoholic liquids. Like camphor, when triturated with chloral hydrate it forms a liquid. Melts at 43° C. and boils at 212° C.

THERAPEUTIC ACTION.—Only used externally. Stimulant, rubefacient, and anodyne.

### MOSCHUS.

MUSK. A peculiar concrete secretion obtained from the preputial follicles of *Moschus moschiferus*, the musk-deer, belonging to the class Mammalia and the order Ruminantia.

ORIGIN.—Musk is obtained from the male, and is found







within a hairy, oval sac, lying between the umbilicus and the prepuce. It is from 5 to 7 centimetres (2 to 3 inches) long and from 2 to 5 centimetres (1 to 2 inches) broad. It has a small, hairy opening at one end and a groove at the other. Internally it has a smooth, membranous lining, and is covered, on its lower surface, by stiff grayish hairs arranged around the openings.

**DESCRIPTION.**—Musk is in the form of moist or oily-looking grains which tend to become lumpy; color, reddish brown, almost black. Odor is strong, animal-like, and characteristic of musk. It will impart this odor to 3000 parts of an inodorous powder. It contains ammonia, cholesterin, fat, wax, an acid, and other principles. Ten per cent. of musk is soluble in alcohol, yielding a brownish-yellow odorous tincture.

**OFFICIAL PREPARATION.**—Tinctura Moschi.

**THERAPEUTIC ACTION.**—Stimulant, aphrodisiac, and antispasmodic.

**DOSE.**—Adult, 0.5 to 1.0 gm. (gr. v to gr. xv); of tincture, 4.0 to 8.0 c. c. (f3j to f3ij). Horse, 3.0 to 10.0 gm. (gr. xlv to 3iiss). Dog and cat, same as adult dose.

## MYRRHA.

**MYRRH.** Sp. gr., 1.36. Natural order, BURSERACEÆ. Habitat, Eastern Africa and Arabia.

**DESCRIPTION.**—Gum resin obtained from *Commiphora Myrrha*. Round masses, or tears. Color, brownish yellow; taste, bitter and acrid; can be emulsified by water. Insoluble in water; easily pulverized. Powder, light yellow. Fracture irregular and shiny. Juice exudes spontaneously and hardens in the air.

**OFFICIAL PREPARATIONS.**—Mistura Ferri Composita, Tinctura Aloes et Myrrhæ, and Tinctura Myrrhæ.

**THERAPEUTIC ACTION.**—Stimulant, tonic, and emmenagogue. Externally stimulant, astringent, and protective.

**DOSE.**—Adult, 0.3 to 2.0 gm. (gr. v to 3ss). Horse and cattle, 4.0 to 8.0 gm. (3j to 3ij). Dog, 0.66 to 1.33 gm. (gr. x to gr. xx).

**NUX VOMICA.**

**NUX VOMICA.** Natural order, LOGANIACEÆ. Habitat, India and East Indies.

**SYNONYM.**—Quaker button.

**DESCRIPTION.**—Seeds of *Strychnos Nux-vomica*. Circular,  $\frac{3}{4}$  inch in diameter, concavo-convex, grayish, and of a silky lustre. Internally light and have a circular cavity. Odorless; taste, persistently bitter. Alcohol extracts their virtues: alkaloids, *strychnine* and *brucia*.

**OFFICIAL PREPARATIONS.**—Extractum Nucis Vomicae and Extractum Nucis Vomicae Fluidum.

**THERAPEUTIC ACTION.**—Small doses, tonic and stomachic. Large doses, excitomotor (nerve-stimulant). Violent poison.

**DOSE.**—Adult (tincture), 0.12 to 0.6 c. c. (*mij* to *mx*). Horse (powder), 2.0 to 4.0 gm. (gr. xxx to 3j). Cattle, double the dose for the horse. Dog (tincture), 0.3 to 0.6 c. c. (*mv* to *mx*).

**Strychnina.**

**STRYCHNINE.** Present in *nux vomica* to the amount of  $\frac{1}{4}$  to  $\frac{1}{2}$  of 1 per cent. *Brucia* must be removed before *strychnina* can be isolated in a pure state.

**DESCRIPTION.**—Colorless, transparent, prismatic crystals or a white crystalline powder, permanent in dry air; taste, persistently bitter. Perceptible in solution of 1 part in 600,000. Insoluble in water. Sparingly soluble in ether and alcohol. Soluble in volatile oils. Salts of *strychnia* (sulphate and hydrochlorate) are soluble in water; insoluble in alcohol and ether. Salts crystallize in colorless, prismatic crystals.

**THERAPEUTIC ACTION.**—Same as *nux vomica*.

**DOSE.**—Adult, 0.001 to 0.003 gm. (gr.  $\frac{1}{60}$  to gr.  $\frac{1}{20}$ ). Horse, 0.065 to 0.13 gm. (gr. j to gr. ij). Cattle, 0.13 to 0.32 gm. (gr. ij to gr. v). Dog, 0.0005 to 0.001 gm. (gr.  $\frac{1}{120}$  to gr.  $\frac{1}{60}$ ). *Strychnia* may be administered hypodermically where quick, decided action is required. In this case use one-fourth the above dose.





**OLEUM MORRHUÆ.**

CODLIVER-OIL. Sp. gr., 0.915 to 0.925.

DESCRIPTION. — A fixed oil obtained from the livers of *Gadus Morrhua* and other species of *gadus*; class, Pisces; order, Teleostia. Three varieties: 1. Pale-straw color; fishy odor. 2. Yellowish brown, strongly fishy. 3. Dark-brown oil, tanners' oil (impure). The difference in color is due to the methods of preparation.

The *pale* oil is obtained from fresh codlivers, caught near the shore. The *yellow* variety is secured from livers that are tainted. The *brown* oil is taken from livers that have undergone more or less putrefaction. Odor and taste fishy and disagreeable. Consistency of thin table syrup. Does not congeal at  $-10^{\circ}$  C. Tanners' oil is used by leatherworkers and occasionally prescribed in medicine.

PREPARATION.—Livers are put into water in a boiler and heated, and a pulpy mass results. After the oil-cells are broken up, it is thrown on a strainer and oil collected; it is then skimmed off from the water and filtered.

THERAPEUTIC ACTION. — Alterative, nutrient, and tonic. Contains more or less iodine. Furnishes material for new mucous cells.

DOSE.—Adult, 3.5 to 15.0 c. c. (f3j to f3iv). Horse, 30.0 to 60.0 c. c. (f3j to f3ij). Cattle, double. Dog, 3.0 to 15.0 c. c. (mxlv to f3iv). Cat, 3.0 c. c. (mxlv). May be made into an emulsion with acacia, sugar, and water, and flavored with wintergreen or almond.

**OLEUM OLIVÆ.**

OLIVE-OIL. Sp. gr., 0.915. Natural order, OLEACEÆ. Habitat, southern Europe.

SYNONYM.—Sweet Oil.

DESCRIPTION.—Fixed oil from the fruit of *Olea Europæa*. Pale greenish-yellow oil, heavier than codliver-oil. Sweetish odor; taste, oily and sweetish. Soluble in ether; insoluble in

alcohol; congeals at 3° C. and when exposed acquires a rancid odor and a darker color. Will dissolve 1 per cent. of strychnia,  $4\frac{2}{10}$  per cent. of quinine, and  $2\frac{6}{10}$  per cent. of atropine. It will not dissolve morphine.

**PREPARATION.**—Olives are first bruised and then subjected to pressure. The first run of oil from olives, not overripe, is purest and is termed "*virgin oil*." The commoner grade obtained from second-grade and overripe olives mixed with water, boiled, oil skimmed off, and filtered, constitutes commercial olive-oil.

**THERAPEUTIC ACTION.**—Laxative, nutrient, and emollient. Used as a laxative for smaller animals and as a vehicle for stronger medicines.

**DOSE.**—Adult, 30.0 to 120.0 c. c. (f̄3j to f̄3iv). Horse, 480.0 to 960.0 c. c. (Oj to Oij). Dog, 30.0 to 60.0 c. c. (f̄3j to f̄3ij).

### OLEUM RICINI.

**CASTOR-OIL.** Sp. gr., 0.969. Natural order, EUPHORBIACEÆ. Habitat, India.

**DESCRIPTION.**—Fixed oil from the seeds of *Ricinus communis*. Viscid; light-yellow color; heavy, lardy odor; and nauseous taste. Not congealed by cold. Heaviest fixed oil. Soluble in alcohol and ether.

**PREPARATION.**—Seeds cleansed and gently heated in a shallow, iron vessel, then put under powerful pressure. Then mixed with water in iron boilers, heated, and oil skimmed off. Heated again, makes oil purer and drives off a volatile poisonous substance. Five quarts of oil are obtained from one bushel of seeds.

**OFFICIAL PREPARATION.**—Collodium Flexile.

**THERAPEUTIC ACTION.**—Cathartic and demulcent. Mild and quickly acting. Combine with oil of turpentine to increase activity.

**DOSE.**—Adult, 8.0 to 30.0 c. c. (f̄3ij to f̄3j). Horse and cattle, 480.0 c. c. (Oj). Dog, 30.0 to 60.0 c. c. (f̄3j to f̄3ij). Cat, 30.0 c. c. (f̄3j).







## OLEUM SUCCINI.

OIL OF AMBER (unofficial). Sp. gr., 0.903.

DESCRIPTION.—Volatile oil obtained by distillation of amber, a fossil resin, from extinct variety of *Conifera*, found in Prussia, on the borders of the Baltic. Thin, dark-colored oil; unpleasant odor and taste. Rectified oil is used. The rectification is performed by mixing with water and distilling. The rectified oil is of a pale-amber color.

THERAPEUTIC ACTION.—Stimulant and antispasmodic. Externally a rubefacient.

DOSE.—Adult, 0.3 to 0.6 c. c. (*mv* to *mx*). Horse, 4.0 to 8.0 c. c. (*f3j* to *f3ij*).

## OLEUM THEOBROMATIS.

OIL OF THEOBROMA.—Sp. gr., 0.970 to 0.980. Natural order, STERCULIACEÆ. Habitat, tropical America.

DESCRIPTION.—Cacao-butter is the concrete juice of kernels of *Theobroma cacao*, the chocolate-nut. Consistence of tallow, creamy-yellow color, agreeable odor, pleasant and chocolatelike taste. Composed of palmitin, stearin, and olein.

PREPARATION.—The bean is crushed and the oil extracted by expression, by decoction, or by the action of solvent by percolation.

THERAPEUTIC ACTION.—Protective and emollient. Used as a base for suppositories.

## OLEUM TIGLII.

CROTON-OIL. Natural order, EUPHORBIACEÆ. Habitat, India.

DESCRIPTION.—A fixed oil from the seeds of *Croton Tiglium*, cultivated in India. Dark brown, generally thick, like castor-oil. Hot, acrid taste; soluble in ether and oil of turpentine. Odorless.

PREPARATION.—Seed is deprived of testa, or outer covering, and oil is obtained by decoction, expression, or percolation.

**THERAPEUTIC ACTION.**—Hydragogue cathartic, vesicant, and pustulant. Too irritant for horses and as a rule produces *gastroenteritis*.

**DOSE.**—Horse, 0.6 to 1.3 c. c. (*mx* to *mxx*). Cattle, 1.5 to 7.5 c. c. (*mxxiv* to *f3ij*). Dog, 0.12 to 0.2 c. c. (gtt. j to gtt. iij). Use externally pure, or mixed with soap liniment or sweet oil.

### OPIMUM.

**OPIUM.**—Natural order, *PAPAVACEÆ*. Habitat, Western Asia (cultivated).

**DESCRIPTION.**—Opium is the concrete milky exudation obtained from the unripe capsules of *Papaver somniferum*, in Asia Minor. This is known as *Smyrna opium* and is the best variety. It is in the form of irregular or subglobular cakes, which vary in weight from 120 grammes to 1000 grammes. When fresh it is a sticky mass of a chestnut-brown color, having a peculiar unpleasant, narcotic odor, and a bitter, disagreeable taste. The lumps are generally covered with poppy-leaves, or the leaves of a variety of rumex. After being exposed to the air it loses moisture and becomes harder and lighter in weight. It is not readily pulverized, except when perfectly dry; it is then of a light-brown color. The heat used in drying the drug must not exceed 85° C. To meet the requirements of the U. S. D., opium must contain, in its natural, moist condition, at least 9 per cent. of crystallized morphine, and the powdered opium must contain not less than 13 per cent. nor more than 15 per cent. of the alkaloid. Opium is obtained from several species of the poppy plant. That plant usually described as the opium poppy is one of the varieties of *Papaver somniferum*, and is known as the "white poppy," on account of its having white seeds. It is an annual, with a round, smooth, branching stem, from 60 centimeters to 90 centimeters in height. Leaves are large, lobed, toothed, and alternate; flowers are large, and of a white, or silvery-gray color; the capsules are smooth, crowned by a sessile, stellate stigma, flattened slightly at both ends, and from 5 to 10 centimetres in diameter. A milky-white juice is found in all





parts of the plant, but the virtue of the plant is found principally in the capsules. A fixed oil is found in the seeds (oil of poppy-seeds), which is free from any of the narcotic properties of the capsule or juice; in fact, it is used in Europe for household and pharmaceutical purposes. This oil solidifies at 20° C.; it has a pale-straw color and a pleasant, almondlike taste. This plant is extensively cultivated in India, Persia, Egypt, and Turkey in Asia. Efforts have been made to introduce the opium poppy into England, France, the United States, Australia, and some other countries, and, while a fair, and, in some cases, a good quality of opium was obtained, it was found that it did not pay to raise it, probably on account of the high price of labor.

*Indian opium*, at first semiliquid, is allowed to drain and dry by spontaneous evaporation until only 30 per cent. of the moisture remains. It is then taken to the government factories, where it is worked with the drainings, poppy-petals, and the ground poppy plant into balls, or, as they are called, "cakes," which measure about 15 centimetres in diameter.

*Persian opium* occurs in different forms, either in pieces about 88 millimetres long and 12 millimetres in diameter, wrapped in paper and weighing about 15 grammes, in short cones weighing from 175 to 300 grammes, or in flat, circular cakes. It is of a liver-brown color, very bitter taste, and a disagreeable, musty odor.

*Egyptian opium* is seen in flat, roundish cakes of various sizes up to 15 centimetres in diameter, and weighing about 1000 grammes; usually they are much smaller; they are wrapped in poppy-leaves. This variety of opium is more brittle than Smyrna, and is uniformly hard throughout the mass. The color is nearly black (a bad color for opium), sometimes more red than Smyrna. It usually contains about half the amount of morphine found in Smyrna; hence it is of much less value. The value of opium is in the percentage of alkaloids it contains, of which there are nineteen, besides two acids, meconic and lactic (combined with the alkaloids); in addition we find two neutral principles (meconin and meconoiosin), pectin, glucose, mucilage, wax, and fatty and coloring matters.

The principal alkaloids are morphina, codeina, and narcotina.

*Morphina* is the one great alkaloid of opium, and was the first one discovered, it being first isolated by Serturner, in 1807, in Germany. It is found in opium as a meconate and a lactate, and is obtained by treating the infusion containing the meconate and lactate with alcohol and water of ammonia. The alcohol retains the coloring matter, the wax, etc.; and the ammonia combines with the acids and the morphine falls as an insoluble precipitate.

The alkaloid morphine is rarely used as a therapeutic agent, the salts—sulphate, hydrochlorate, and acetate—being more convenient on account of their ready solubility. The salts are prepared by treating the alkaloid with one of the three acids: sulphuric, hydrochloric, or acetic. The sulphate is the one most commonly used. It is in the form of white, feathery, acicular crystals, having a silky lustre. They are unalterable in the air, and contain 11.84 per cent. of water of crystallization, without odor; the taste is very bitter. They are soluble in 24 parts of cold water, in 0.75 part of boiling water, in 700 parts of cold alcohol, and in 144 parts of boiling alcohol. The solution in water is not permanent, but deteriorates on standing.

*Codeina* is the second important alkaloid of opium. It is prepared by treating a solution of the mixed hydrochlorates of morphine and codeine with ammonia, the former alkaloid being precipitated, and the latter obtained from the solution by evaporation and crystallization. It is in the form of creamy-white, translucent, rhombic prisms, which are permanent in dry air, but efflorescent when heated, having no odor, but a slightly bitter taste; soluble in 80 parts of cold water and 17 parts of boiling water; freely soluble in alcohol, ether, and chloroform. Therapeutically it is a sedative.

*Narcotina*, the third alkaloid of some value to us, is white, tasteless, inodorous, silky, flexible needles, usually larger than the crystals of morphine. Insoluble in cold water; soluble in 400 parts of boiling water, 100 parts of cold alcohol, and 24 parts of boiling alcohol; freely soluble in ether. It has no







narcotic properties, but is rather antiperiodic in its action. The proportion of narcotine varies in the different varieties of opium. Smyrna opium has been found to contain from 1.5 per cent. to 9.5 per cent. of this alkaloid.

**PREPARATION.**—The process for procuring opium from the poppy capsules is the same, according to the best authority, as it was 1800 years ago. A few days after the flower falls, and while the capsule is yet green, men and women go to the fields and make incisions across the side of the capsule, care being taken not to puncture the capsules. A white juice exudes which, after twenty-four hours, is scraped off, in the state of an adhesive, rather granular jelly, and is then beaten up in a vessel and moistened with saliva. This mass is then packed in one of the shapes previously described and sent to market.

**OFFICIAL PREPARATIONS.**—Acetum Opii (Vinegar of Opium), Extractum Opii, Pulvis Ipecacuanhæ et Opii (Dover's Powder), Opii Pulvis, Tinctura Opii (Laudanum), Tinctura Opii Camphorata (Paregoric), Tinctura Opii Deodorata (Deodorized Laudanum), and Vinum Opii (Wine of Opium).

**INCOMPATIBILITIES.**—There are a number of substances which produce a precipitate with opium and its preparations, the most familiar of which are the soluble lead salts. This does not detract from the therapeutic value of the mixture, merely precipitating the alkaloids, while such vegetable infusions as contain *tannic acid* and *gallic acid* will throw down an insoluble precipitate of the tannates and the gallates of the alkaloids. The *alkalies* will also form insoluble compounds with opium. Hence gallic acid, tannic acid, and all preparations containing them, as well as the alkalies, should not be prescribed with opium and its pharmaceutical preparations.

**ELIMINATION.**—Opium is eliminated by the gastric mucous membrane, and may also be found in the stomach after subcutaneous injection. It is also excreted in the bile, but may remain a long time in the liver. It is found unchanged in the urine (Brunton).

**THERAPEUTIC ACTION.**—Stimulant narcotic, sedative, analgesic, hypnotic, sudorific, and checks secretions.

**TOXICOLOGY.**—Opium kills by paralysis of respiration, the heart continuing to beat after breathing has ceased, its action being directly on the respiratory centers in the medulla. The most pronounced symptoms of opium poisoning are: Contracted pupils; full, slow, strong pulse, becoming more feeble and more rapid. The skin is at first dry and warm, but later on becomes cold and moist, with a peculiar deathlike clamminess as the end approaches. The respirations are often intermittent, and are slow and feeble. Just before death the pupils become widely dilated.

**TREATMENT FOR OPIUM POISONING.**—The stomach should be emptied at once, either by the use of emetics, or, as emetics will not always act on account of the benumbed condition of the nervous system, the stomach-pump or siphon should be used. Respiratory and cardiac stimulants are of the greatest importance: hypodermics of atropine and drenches of strong coffee. The alkaloid caffeine may be used either internally or subcutaneously.

**DOSE.**—*Opium*.—Adult, 0.015 to 0.12 gm. (gr.  $\frac{1}{4}$  to gr. ij). Horse, 3.0 to 8.0 gm. (gr. xlv to  $\text{ʒij}$ ). Cattle, 6.0 to 15.0 gm.  $\text{ʒi } \frac{1}{2}$  to  $\text{ʒiii } \frac{3}{4}$ . Dog, 0.06 to 0.4 gm. (gr. j to gr. vj). Cat, 0.032 to 0.2 gm. (gr. ss to gr. iij).

*Morphine and its Salts*.—Adult, 0.01 gm. (gr.  $\frac{1}{6}$ ). Horse and cattle, 0.2 to 0.6 gm. (gr. iij to gr. ix). Dog, 0.008 to 0.032 gm. (gr.  $\frac{1}{8}$  to gr.  $\frac{1}{2}$ ). When the salts of morphine are administered hypodermically the above doses should be reduced one-half.

*Tincture of Opium (Laudanum)*.—Adult, 0.5 to 1.0 c. c. (mviij to mxv). Horse and cattle, 26.0 to 75.0 c. c. (f3viss to f3iiss). Dog, 1.0 to 3.0 c. c. (mxv to mxlv).

## PARALDEHYDUM.

**PARALDEHYDE** ( $\text{C}_6\text{H}_{12}\text{O}_6$ ).

**DESCRIPTION.**—A colorless liquid having an offensive odor and taste; boils at  $124^\circ \text{C}$ .





**PREPARATION.**—Paraldehyde is prepared by heating a mixture of acetic aldehyde with a small quantity of hydrochloric acid. *Acetic aldehyde* is prepared by the oxidation of alcohol with chromic acid or some other like oxidizing agent.

**THERAPEUTIC ACTION.**—Somnifacient and local irritant to mucous membranes.

**TOXICOLOGY.**—Paraldehyde produces sleep, fall of bodily temperature, change in blood-color (due to formation of met-hæmoglobin in the blood) and decrease in heart-force.

**DOSE.**—Adult, 1.3 to 4.0 c. c. (*mxx* to *f3j*). Horse, 8.0 to 15.0 c. c. (*f3ij* to *f3ss*). Dog and cat, 0.3 to 1.0 c. c. (*mv* to *mxxvj*).

### PEPSINUM.

#### PEPSIN.

**DESCRIPTION.**—Grayish-colored powder or pale-yellow scales, repulsive animal odor. Insoluble in alcohol; soluble in water. First precipitates and then dissolves albumin and gelatin. One part of pepsin should dissolve 3000 parts of coagulated and disintegrated albumin.

**PREPARATION.**—Prepared from the mucous membrane of the stomach of the hog. By exposing fresh mucous membrane, cleansing with cold water, scraping, and obtaining a pulp. Spread on glass, dried at a temperature not exceeding 41° C.; or by macerating the stomach in water and pepsin precipitated by sodium chloride.

**OFFICIAL PREPARATION.**—Pepsinum Saccharatum.

**THERAPEUTIC ACTION.**—Digestant.

**DOSE.**—Adult (pepsin), 1.0 to 4.0 gm. (gr. xv to gr. lx). Calf and foal, double the adult dose.

### PETROLATUM.

**PETROLATUM,** Cosmoline, Vaseline, or Petroleum Ointment. Sp. gr., 0.820 to 0.840.

**DESCRIPTION.**—Yellow, more or less transparent mass; when melted has the fluorescent appearance of coal-oil. Taste-

less, odorless, and of neutral reaction. It is a hydrocarbon. It is insoluble in alcohol and water, but soluble in ether, chloroform, oil of turpentine, benzine, and volatile oils. Does not become rancid. Dissolves bromine, iodine, and alkaloids.

**PREPARATION.**—From coal-oil by distilling off the lighter and more volatile portions and purifying.

**THERAPEUTIC ACTION.**—Emollient.

### PHOSPHORUS.

**PHOSPHORUS.** Sp. gr., 1.8.

**DESCRIPTION.**—Transparent, almost colorless solid, resembling wax, and an onionlike odor. Inflammable, and must be kept in the dark and under water. Emits white fumes, which are luminous in the dark. Age causes it to become slightly yellow in color. Insoluble in water; sparingly so in ether. Nonmetallic element.

**PREPARATION.**—From bone.

**THERAPEUTIC ACTION.**—Tonic and general stimulant, especially to the nerves. Is an irritant poison. Mostly used in the form of dilute phosphoric acid.

**DOSE.**—*Acid.*—Adult, 1.0 to 3.75 c. c. (*mxx* to *f3j*). Horse, 4.0 to 8.0 c. c. (*f3j* to *f3ij*). Dog, 0.3 to 2.0 c. c. (*mv* to *f3ss*).

### PHYSOSTIGMA.

**CALABAR BEAN.** Natural order, *LEGUMINOSÆ*. Habitat, tropical West Africa.

**DESCRIPTION.**—Seeds of *Physostigma venenosum*. Bean, size of a large horse bean: 1 to 1 1/2 inches long. Externally a shining, chocolate color, hard and brittle; inside two cotyledons, white and starchy. Taste like a raw bean. Powdered, yields virtues to alcohol and slightly to water. Powder is of a pale-chocolate color. Its alkaloid, *eserine*, is used by subcutaneous injection. Two salts of *eserine*: sulphate and salicylate.

**OFFICIAL PREPARATIONS.**—*Extractum Physostigmatis* and *Tinctura Physostigmatis*.







**THERAPEUTIC ACTION.**—Depressomotor, mydriatic, antispasmodic, laxative, and produces ptyalism. Eserine causes contraction of pupils of the eye, locally or centrally.

**TOXICOLOGY.**—Intestinal murmurs; colicky pains; passage of flatus and fæces, gradually assuming a liquid form. Profuse sweating, which is general. Convulsive breathing, muscular weakness, collapse, and death.

**ANTIDOTES.**—Atropine, stimulants, and artificial respiration.

**DOSE.**—*Powder.*—Adult, 0.01 to 0.06 gm. (gr.  $\frac{1}{6}$  to gr. j). Horse, 1.0 to 2.0 gm. (gr. xv to gr. xxx). Dog, 0.016 to 0.032 gm. (gr.  $\frac{1}{4}$  to gr.  $\frac{1}{2}$ ).

*Eserine.*—Adult, 0.001 to 0.006 gm. (gr.  $\frac{1}{60}$  to gr.  $\frac{1}{10}$ ). Horse, 0.13 to 1.6 gm. (gr. ij to gr. xx). Dog, 0.003 to 0.006 gm. (gr. ss to gr. j). Hypodermic dose one-half the above.

## PILOCARPUS.

**JABORANDI.** Natural order, RUTACEÆ. Habitat, Brazil.

**DESCRIPTION.**—Leaflets of *Pilocarpus selloanus*. The leaves are pinnate in shape and bear from five to eleven leaflets, which are oval or oblong ovate, about 10 centimetres (4 inches) long and 4.8 centimetres ( $1\frac{1}{2}$  inches) wide; they are opposite and have an entire margin. Midrib is prominent on both sides of the leaflet. Taste is bitter and pungent; odor is somewhat aromatic. They contain an alkaloid, *pilocarpina*; an acrid resin; volatile oil, and tannic acid.

**OFFICIAL PREPARATION.**—Extractum Pilocarpi Fluidum.

**THERAPEUTIC ACTION.**—Diaphoretic, antihypnotic, and sialagogue.

**DOSE.**—*Fluid Extract.*—Adult, 2.0 to 4.0 c. c. (f3ss to f3j). Horse, 15.0 to 30.0 c. c. (f3ss to f3j). Dog and cat, 1.0 to 4.0 c. c. (mxv to f3j).

*Pilocarpine Hydrochlorate.*—Should be given hypodermically. Adult, 0.001 to 0.03 gm. (gr.  $\frac{1}{64}$  to gr.  $\frac{1}{2}$ ). Horse, 0.1 to 0.2 gm. (gr. iss to gr. iij).

**PLUMBUM.****Lead and its Preparations.****Plumbi Acetas.**

LEAD ACETATE, Sugar of Lead ( $\text{Pb} [\text{C}_2\text{H}_3\text{O}_2]_2$ ).

DESCRIPTION.—White masses or in prismatic crystals. Odor vinegarlike and taste metallic. Soluble in water and alcohol. All salts of lead are incompatible with most pharmaceutical preparations and metallic salts.

PREPARATION.—By dissolving oxide of lead in acetic acid by heat, or exposing lead to action of vinegar, then decanting and crystallizing.

OFFICIAL PREPARATION.—Liquor Plumbi Subacetatis.

THERAPEUTIC ACTION.—Astringent, sedative, and is an irritant poison.

TOXICOLOGY.—Characteristic, colic, not violent; nausea; pulse rapid, small, and hard; then limbs rigid; general paralysis, and particularly of the optic nerve; black diarrhoea, if any; there may be constipation.

ANTIDOTE.—Any soluble nonpoisonous sulphate: dilute sulphuric acid. Demulcents.

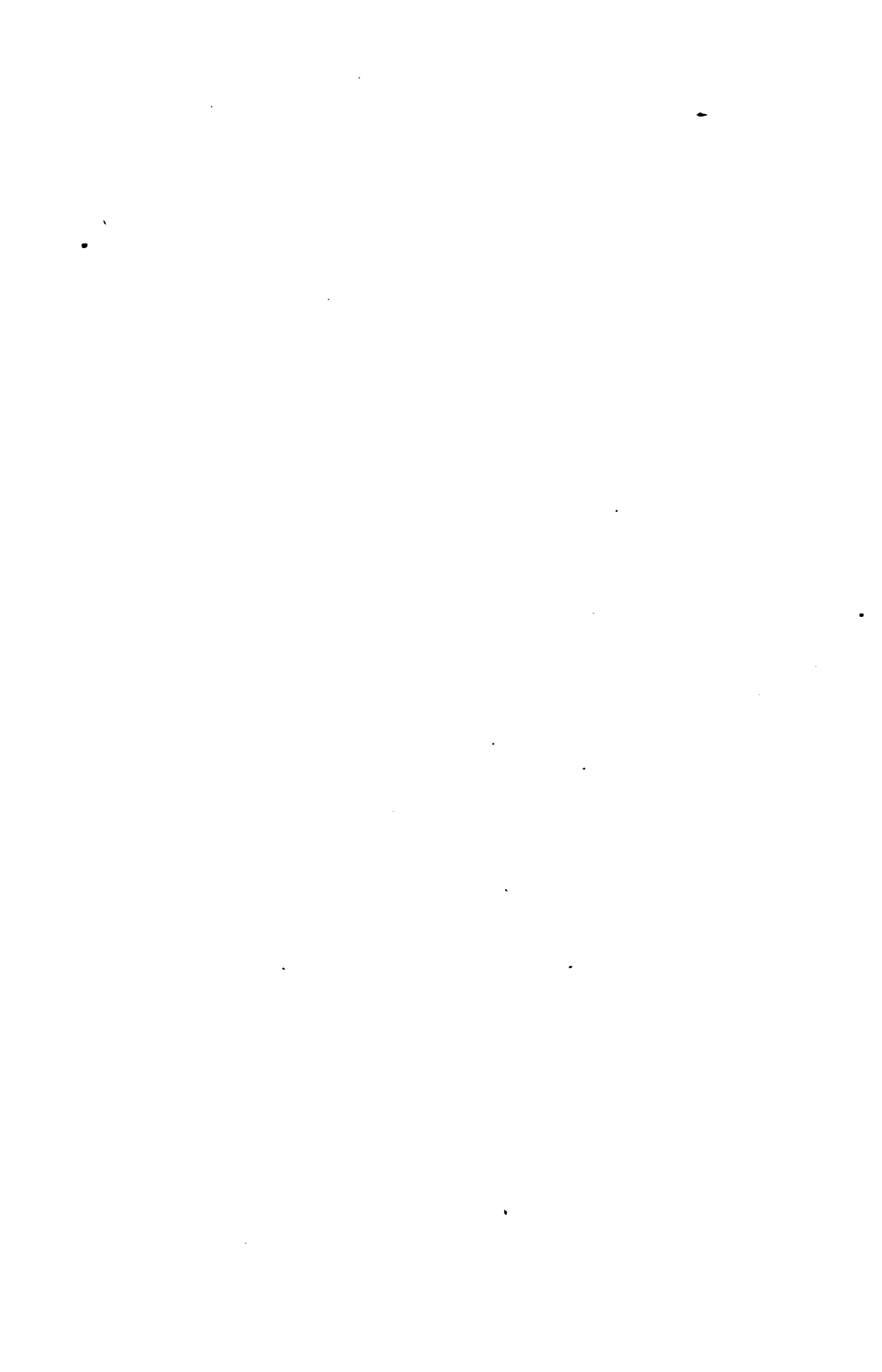
DOSE.—Adult, 0.03 to 0.3 gm. (gr. ss to gr. ivss). Horse and cattle, 2.0 to 5.0 gm. (gr. xxx to gr. lxxv). Dog, 0.06 to 0.3 gm. (gr. j to gr. ivss).

**Plumbi Iodidum.**

IODIDE OF LEAD ( $\text{PbI}_2$ ).

DESCRIPTION.—Very minute crystals or yellow powder, heavy, odorless, and tasteless. It is sparingly soluble in water and slightly soluble in alcohol. It is separated by heat, and is never used internally.

PREPARATION.—Equal parts of iodide of potassium and nitrate of lead are dissolved separately in water and solutions mixed.





OFFICIAL PREPARATION.—Unguentum Plumbi Iodidi, 10 per cent.

THERAPEUTIC ACTION.—Resolvent and sedative. Never used internally.

### Plumbi Oxidum.

LEAD OXIDE, Litharge (PbO).

DESCRIPTION.—Small, bright-red, metallic scales or a brown powder. No taste or odor. Saponifies fats when boiled with them. Insoluble in water and alcohol. Never used internally.

PREPARATION.—By roasting metallic lead over which a constant stream of air is passing.

OFFICIAL PREPARATION.—Liquor Plumbi Subacetatis.

### PODOPHYLLUM.

PODOPHYLLUM. Natural order, BERBERIDEÆ. Habitat, rich woods of North America.

SYNONYMS.—May Apple, Mandrake.

DESCRIPTION.—Rhizome of *Podophyllum peltatum*,  $\frac{1}{5}$  inch in diameter, varies in length. Dark brown externally, yellowish white internally, joints swelling and about two inches apart. Powder light gray; slight odor; bitter-sweet taste. Yields its properties to alcohol and dilute alcohol. Contains a resinoid, *podophyllin*; also gum, starch, extractive matter, gallic acid, and traces of a fixed and a volatile oil. The resinoid is obtained by precipitating it from an alcoholic tincture with water.

OFFICIAL PREPARATIONS.—Extractum Podophylli, Extractum Podophylli Fluidum, and Resina Podophylli.

THERAPEUTIC ACTION.—A slowly acting hydragogue cathartic.

DOSE.—*Resinoid*.—Adult, 0.005 to 0.06 gm. (gr.  $\frac{1}{12}$  to gr. j). Horse and cattle, 4.0 to 8.0 gm. (3j to 3ij). Dog, 0.06 to 0.13 gm. (gr. j to gr. ij).

**POTASSIUM.****Potassium and its Salts.**

POTASSIUM, Kalium (K). Sp. gr., 0.865. Melts at 93° C. Burns violently on water.

**Potassii Acetas.**

ACETATE OF POTASSIUM ( $KC_2H_3O_2$ ).

DESCRIPTION.—It is a pure white salt, neutral in reaction, greasy to the touch and tends to adhere and form lumpy masses. It is very deliquescent even in dry air. Taste is warm, pungent, and saline; odor is vinegarlike. Soluble in half its weight of water and twice its weight of alcohol.

PREPARATION.—Prepared by neutralizing acetic acid with bicarbonate of potassium, filtering the solution, evaporating, and permitting the salt to crystallize out.

THERAPEUTIC ACTION.—Diuretic, antirheumatic, and depurant.

DOSE.—Adult, 2.0 to 4.0 gm. (gr. xxx to 3j). Horse, 15.0 to 30.0 gm. (3ss to 3j). Dog and cat, 1.0 to 3.0 gm. (gr. xv to gr. xlv).

**Potassii Bichromas.**

POTASSIUM BICHRIMATE ( $K_2Cr_2O_7$ ).

DESCRIPTION.—Orange-red, transparent, four-sided, tabular crystals, freely soluble in water, insoluble in alcohol. No odor; cooling, bitter, metallic taste. Permanent.

PREPARATION.—Prepared from yellow chromate by treating it with sulphuric acid.

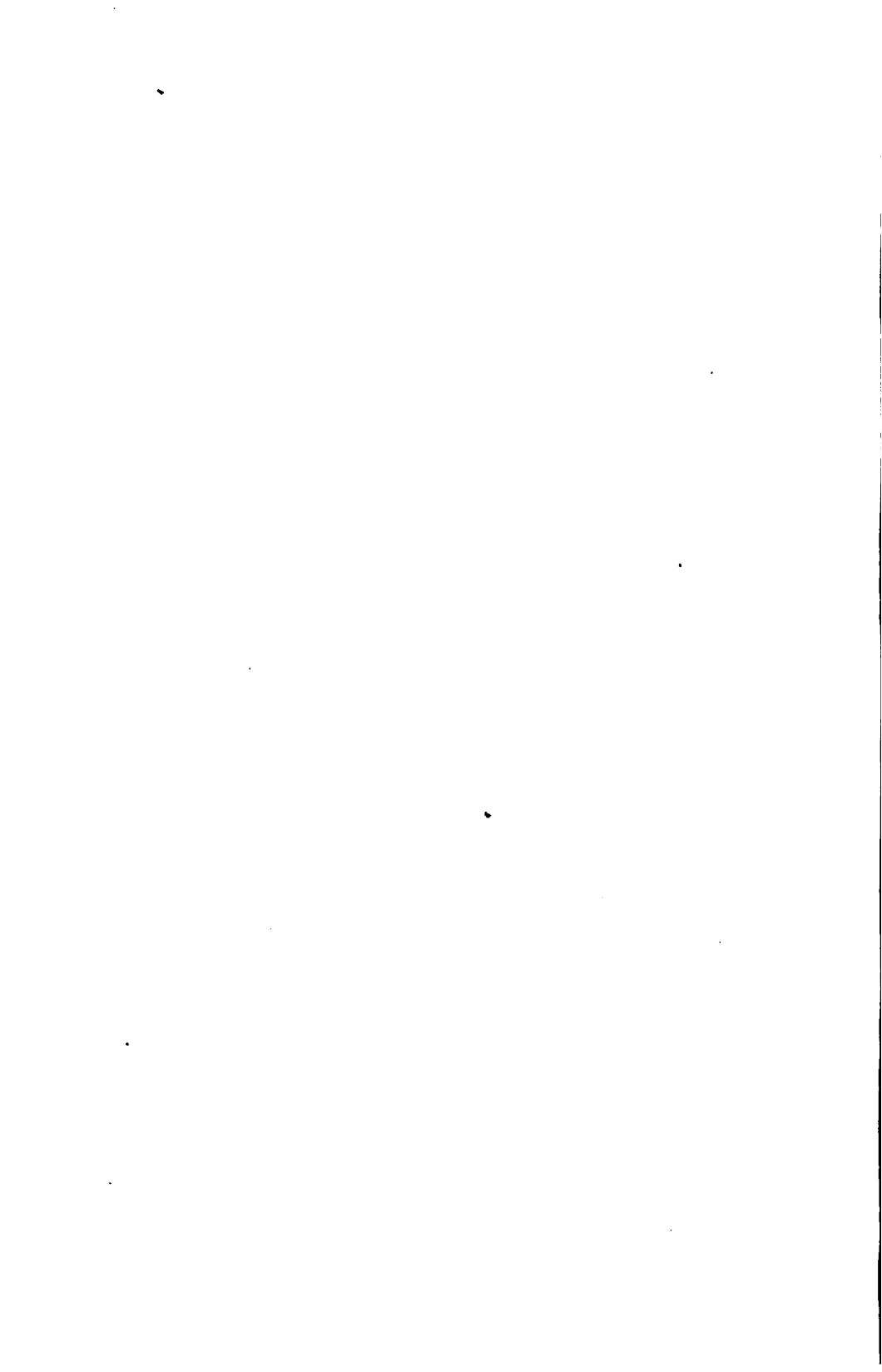
THERAPEUTIC ACTION.—Small doses, alterative. Larger doses, emetic. Local irritant; caustic and escharotic. Rarely used internally.

TOXICOLOGY.—Violent irritant.

ANTIDOTES.—Stomach-pump, bicarbonate of sodium, soap, or opium.







**Potassii Bitartras.**

POTASSIUM BITARTRATE, Cream of Tartar ( $\text{KHC}_4\text{H}_4\text{O}_6$ ).

DESCRIPTION.—A fine, white, gritty powder; pleasant, acidulous taste. Soluble in water; insoluble in alcohol. No odor.

PREPARATION.—From *argols*, a crust of tartrate of potassium with some impurities, which forms on the inside of wine-casks during fermentation. Purified by boiling in water, filtering, and crystallizing the salt. Pipe clay is added during the boiling to precipitate the impurities. Used only in the powdered form.

THERAPEUTIC ACTION.—Cathartic, diuretic, and refrigerant. Best simple nonirritant and cooling diuretic.

DOSE.—Adult, 0.3 to 8.0 gm. (gr. v to  $\text{ʒij}$ ). Horse and cattle, 64.0 to 128.0 gm. ( $\text{ʒij}$  to  $\text{ʒiv}$ ). Dog, 4.0 to 12.0 ( $\text{ʒj}$  to  $\text{ʒiij}$ ).

**Potassii Bromidum.**

BROMIDE OF POTASSIUM (KBr).

DESCRIPTION.—Cubical or quadrangular crystals, permanent, colorless, and anhydrous. The taste is pungent and saline. Odorless. Freely soluble in cold water, more so in hot water, and sparingly so in alcohol. It is eliminated by all the secretions of the body, and is accumulative.

PREPARATION.—Prepared by precipitating freshly made solution of iron bromide with pure carbonate of potassium, filtering, evaporating, and allowing crystals to form.

THERAPEUTIC ACTION.—Nerve-sedative, anaphrodisiac, alterative, and resolvent. It produces "bromism" when given in sufficient doses in either man or the lower animals, but is never dangerous to life.

DOSE.—Adult, 1.3 to 4.0 gm. (gr. xx to  $\text{ʒj}$ ). Horse, 15.0 to 40.0 gm. ( $\text{ʒss}$  to  $\text{ʒi ʒiiss}$ ). Dog and cat, 0.3 to 1.0 gm. (gr. v to gr. xv).

**Potassii Chloras.**

POTASSIUM CHLORATE, Chlorate of Potassium ( $\text{KClO}_3$ ).

DESCRIPTION. — Pearl-colored, crystalline, rhomboidal plates. Taste, cooling and saline. Soluble in 16 parts of cold water. Insoluble in alcohol. No odor.

PREPARATION.—Passing chlorine-gas through a mixture of potassium carbonate and slaked lime. After saturation, boiled, filtered, and evaporated, and the chlorate is crystallized out.

THERAPEUTIC ACTION.—Diuretic, and stimulant to mucous membrane. Externally, antiseptic, stimulant, and refrigerant.

DOSE.—Adult, 0.3 to 2.0 gm. (gr. v to 3ss). Horse, 4.0 to 16.0 gm. (3j to 3iv). Dog, 0.3 to 1.0 gm. (gr. v to gr. xv).

**Potassii Cyanidum.**

POTASSIUM CYANIDE, Cyanide of Potassium ( $\text{KCN}$ ).

DESCRIPTION.—White, opaque, amorphous mass, or, if stirred while cooling, a fine, white, granular powder. Odorless when cool, and odor of bitter almonds when heated. Taste, biting and saline. Permanent in dry air, but in moist air very deliquescent. Strongly alkaline reaction. Soluble in 2 parts of cold and 1 part of boiling water, sparingly so in alcohol. A very poisonous salt, due to the cyanogen it contains.

PREPARATION.—By heating ferrocyanide of potassium to a dull-red heat, until gas ceases to be evolved, allowing the sediment to subside, and pouring off the clear liquid, which hardens on cooling; also by heating together ferrocyanide of potassium and carbonate of potassium, until the gas ceases to be evolved, and pouring the supernatant liquid on a slab to cool.

THERAPEUTIC ACTION.—Local sedative, cardiac depressant, and most violent poison known.

TOXICOLOGY.—If dose is large, causes animal to drop in state of spasm, and death follows quickly, due to arrest of heart's action, accompanied by the phenomena of asphyxia. When dose is small, but poisonous, suffering is long drawn out;





death slower and brought on by respiratory arrest. When death is instantaneous it is due to the action of the drug on the motor ganglion of the heart. Course of poisoning on the nervous system: First, paralysis of the brain; then peripheral afferent nerves, spinal cord, motor nerves; and last, muscles.

ANTIDOTE.—In large doses death ensues quickly, and nothing will counteract the toxic action of the drug. For small poisonous doses use artificial respiration; give cardiac stimulants, hypodermics of ammonia and atropine, and hot and cold douches alternately.

DOSE.—*Official 2-per-cent. Dilute Hydrocyanic Acid.*—Adult, 0.06 to 0.18 c. c. (*mj* to *mij*). Horse and cattle, 1.0 to 4.0 c. c. (*mxv* to *f3j*). Dog, 0.1 to 1.0 c. c. (*miss* to *mxv*).

### Potassii Iodidum.

#### POTASSIUM IODIDE (KI).

DESCRIPTION.—Colorless, opaque, cubic crystals, or in the form of granules. Taste at first saline and biting, later becoming bitter. Odor is faint and somewhat like iodine. Permanent in dry, but readily deliquesces in moist, air. Soluble in three-fourths its weight of cold water and in one-half its weight of boiling water; also in 18 parts of cold alcohol, in 6 parts of boiling alcohol, and in 2.5 parts of glycerin. It is incompatible with the alkaloids and the soluble mercury and lead salts. One of the greatest uses of this salt is to hasten the elimination of metallic poisons (particularly lead and mercury) from the system. Most of the secretions of the body, particularly the urine, assist in its elimination.

PREPARATION.—Potassa is dissolved in distilled water and iodine is added slightly in excess. The solution is evaporated to dryness, charcoal being added during latter part of evaporation. This product is powdered, heated to redness, and after being cooled the iodide is dissolved out with distilled water. The mixture is filtered, concentrated, and set aside for crystallization.

OFFICIAL PREPARATION.—Unguentum Potassii Iodidi.

THERAPEUTIC ACTION.—Absorbent, alterative, deobstruent, antiseptic, and diuretic.

DOSE.—Adult, 0.13 to 1.0 gm. (gr. ij to gr. xv). Horse and cattle, 8.0 to 24.0 gm. (ʒij to ʒvj). Sheep, 1.0 to 2.0 gm. (gr. xv to gr. xxx). Dog and cat, 0.3 to 1.0 gm. (gr. v to gr. xv).

### Potassii Nitrates.

POTASSIUM NITRATE, Saltpeter ( $\text{KNO}_3$ ).

SOURCE.—Volcanic origin. Found in Egypt, Peru, India, and Europe. Also found in some plants, as in tobacco, hemlock, and sunflower.

DESCRIPTION.—Long translucent, striated, six-sided prisms. Soluble in cold and in hot water. Insoluble in alcohol. Burns readily. Taste is cooling and saline.

PREPARATION.—From the commercial nitrate by purifying.

THERAPEUTIC ACTION.—Refrigerant, diuretic, diaphoretic, and antiseptic. Tends to soften excreta (laxative).

DOSE.—*Diuretic*.—Adult, 0.13 to 1.0 gm. (gr. ij to gr. xv). Horse, 16.0 to 32.0 gm. (ʒss to ʒj). Cattle, 32.0 to 64.0 gm. (ʒj to ʒij). Dog, 0.66 to 2.0 gm. (gr. x to gr. xxx). Smaller doses act as a febrifuge.

### Potassii Permanganas.

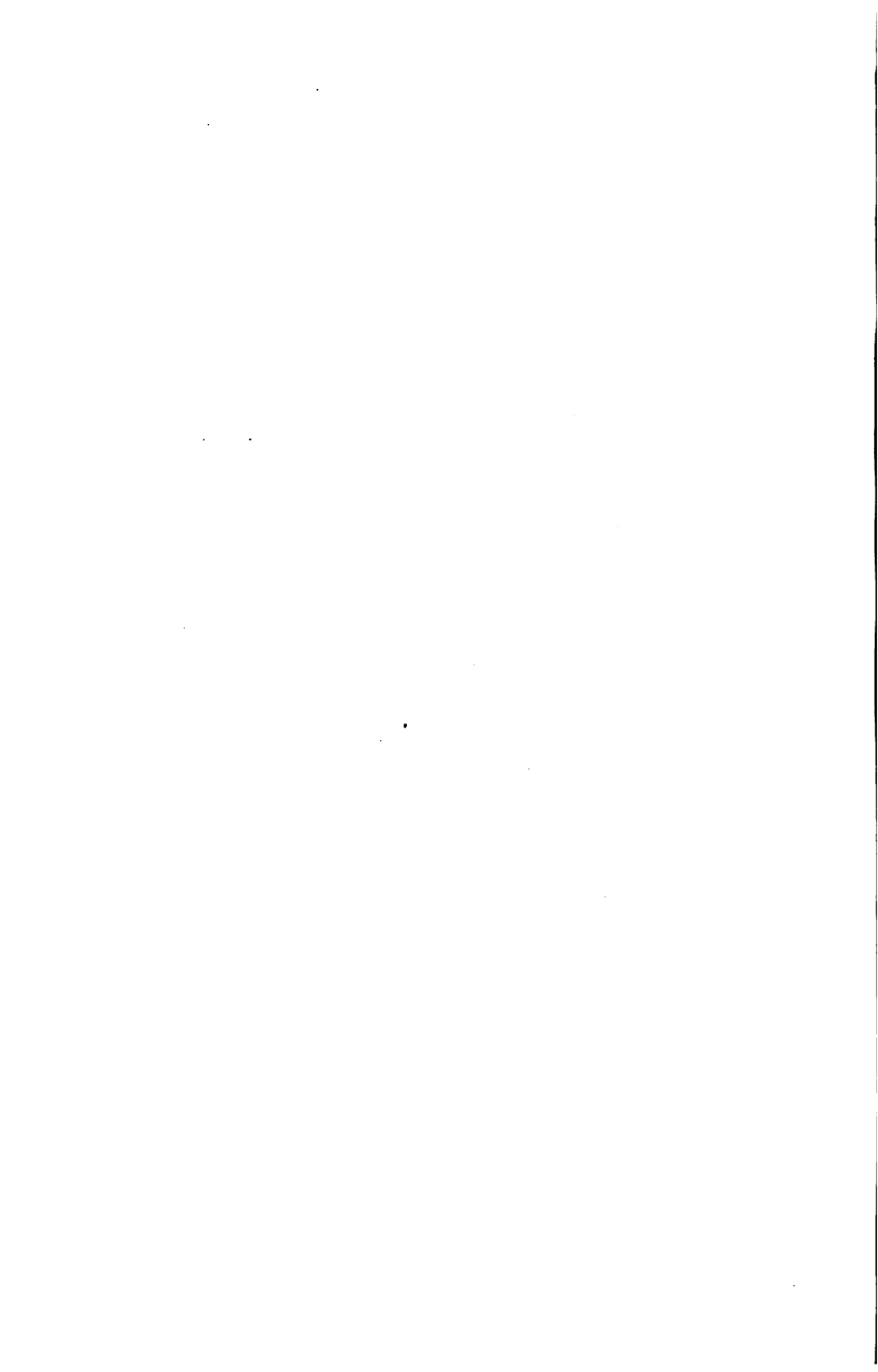
POTASSIUM PERMANGANATE ( $\text{KMnO}_4$ ).

DESCRIPTION.—Slender, needle-shaped crystals, having a dark purple color and a sweetish, astringent taste. Odorless and soluble in water. Color not permanent. Mixed with any organic substance, explodes or burns, from the rapidity with which the O is given up.

PREPARATION.—By heating caustic potash and dioxide of manganese with potassium chlorate, forming manganate of potassium; this is boiled with water, forming permanganate, and the dioxide is precipitated. The solution is then decanted and treated with sulphuric acid, filtered and crystallized.







**THERAPEUTIC ACTION.**—Antiseptic and disinfectant.

**DOSE.**—Adult, 0.03 to 0.12 gm. (gr. ss to gr. ij). Horse, 1.0 to 1.3 gm. (gr. xv to gr. xx). Dog, 0.06 to 0.12 gm. (gr. j to gr. ij).

### PRUNUS VIRGINIANA.

**WILD CHERRY.** Natural order, ROSACEÆ. Habitat, woods of North America.

**DESCRIPTION.**—Bark of *Prunus serotina*. Pieces flat, irregular, or somewhat curved. Reddish brown and mottled, fawn-colored powder. Is easily pulverized. Emits the odor of peach-leaves when treated with water. Taste bitter, astringent, and almondlike. Yields its virtues to alcohol and water. When treated with water *emulsin* acts upon *amygdalin* and forms HCN. It also contains tannic acid.

**OFFICIAL PREPARATIONS.**—Extractum Pruni Virginianæ Fluidum, Infusum Pruni Virginianæ, and Syrupus Pruni Virginianæ.

**THERAPEUTIC ACTION.**—Tonic, stomachic, and astringent. One of Wood's "Peculiar Bitters."

**DOSE.**—*Infusion.*—Adult, 15.0 to 30.0 c. c. (f̄ss to f̄j). Dog, 15.0 to 30.0 c. c. (f̄ss to f̄j).

*Syrup.*—Adult, 3.75 to 15.0 c. c. (f̄j to f̄iv). Dog, 3.75 to 15.0 c. c. (f̄j to f̄iv).

### QUASSIA.

**QUASSIA.** Natural order, SIMARUBEÆ. Habitat, Jamaica.

**DESCRIPTION.**—Wood of *Picræna excelsa*. Color, whitish; on exposure gets yellow. No odor, intensely bitter taste. Yields all therapeutic principles to water and alcohol. Bitterness is due to *quassin*: an opaque, white crystal, unchanged by air; without odor; intensely bitter, precipitated by tannic acid; partly soluble in water.

**OFFICIAL PREPARATIONS.**—Extractum Quassiae, Extractum Quassiae Fluidum, and Tinctura Quassiae.

**THERAPEUTIC ACTION.**—Stomachic and anthelmintic. One of Wood's "Simple Bitters."

**DOSE.** — *Tincture.* — Adult, 1.0 to 4.0 c. c. (*mxv* to *f3j*). Horse and cattle, 60.0 to 120.0 c. c. (*f3ij* to *f3iv*). Pig and sheep, 15.0 to 20.0 c. c. (*f3iv* to *f3v*). Dog, 3.0 to 4.0 c. c. (*mxlv* to *f3j*).

### QUERCUS.

**QUERCUS**, White-Oak Bark. Natural order, CUPULIFERÆ. Habitat, woods of North America.

**DESCRIPTION.** — The bark of *Quercus alba* deprived of its outside corky layer; pieces almost flat and  $\frac{1}{4}$  inch thick. Light-brown color. Texture coarse and woody. Taste strongly astringent. Yields its virtues to alcohol and water. Soluble constituents are *gallic* and *tannic acids*, a bitter extractive principle, and a peculiar bitter principle called *quercin*. It is an incompatible on account of the tannic acid.

**THERAPEUTIC ACTION.** — Astringent. Locally, astringent and stimulant.

**DOSE.** — *Powder.* — Horse, 8.0 to 16.0 gm. (*3ij* to *3iv*). Cattle, double. Sheep and pig, 2.0 to 8.0 gm. (*3ss* to *3ij*). Dog, 0.66 to 2.0 gm. (*gr. x* to *gr. xxx*).

### RHAMNUS PURSHIANA.

**CASCARA SAGRADA**, American Buckthorn. Natural order, RHAMNÆÆ. Habitat, Pacific slope.

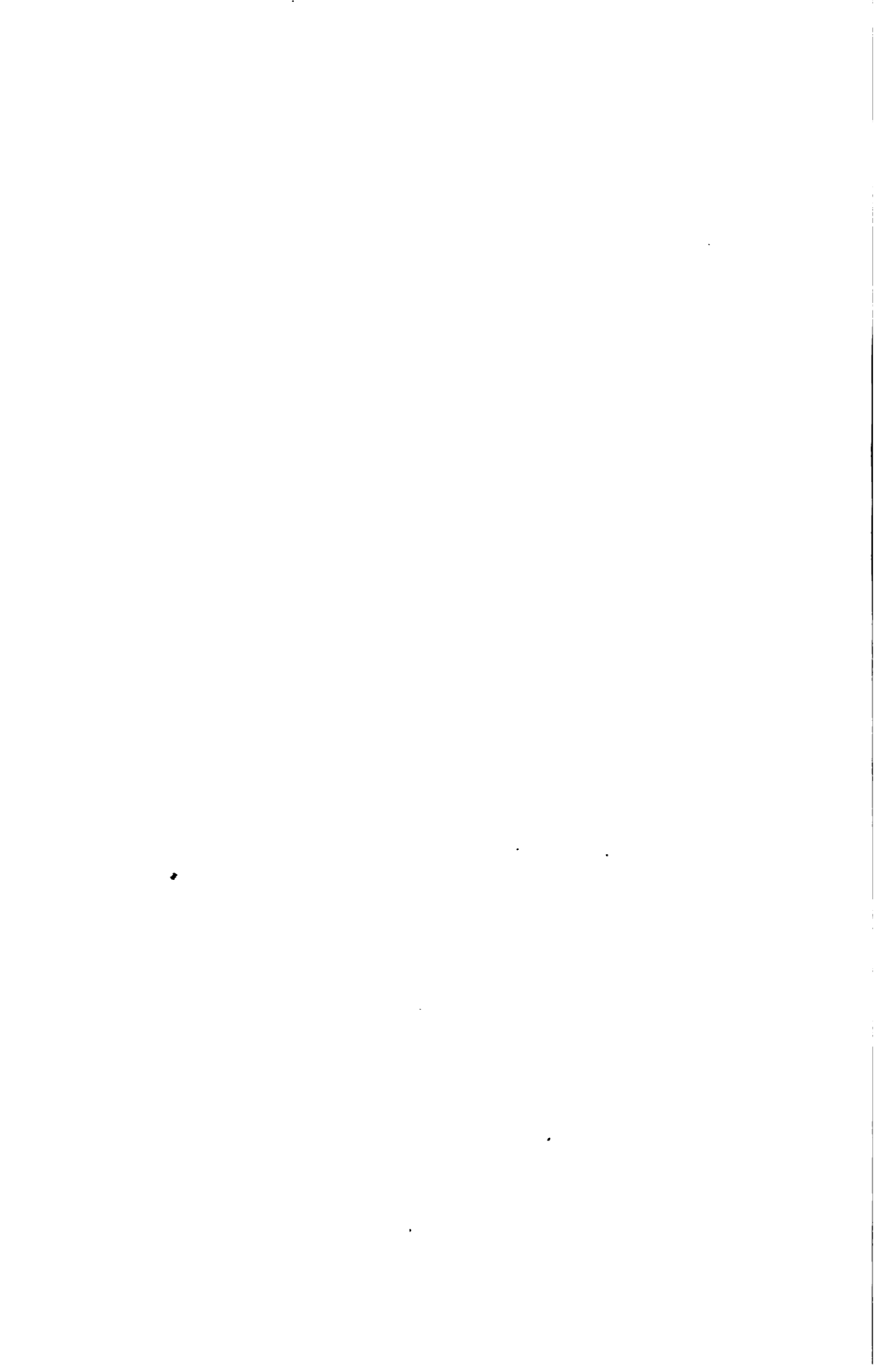
**DESCRIPTION.** — Dried bark of *Rhamnus Purshiana*. Quills or curved pieces, 3 to 10 centimetres long and 2 millimetres thick. Externally brownish gray; inner surface a light brown; smooth or finely ribbed; fracture short. Odorless, and taste unpleasantly bitter.

**OFFICIAL PREPARATION.** — Extractum Rhamni Purshianæ Fluidum.

**THERAPEUTIC ACTION.** — Laxative and tonic (slight tonic properties).

**DOSE.** — *Fluid Extract.* — *Tonic.* — Adult, 0.3 to 0.5 c. c. (*mv* to *mviiij*). Dog, 0.33 to 0.66 c. c. (*mv* to *mx*).





*Laxative*.—Adult, 2.0 to 4.0 c. c. (f3ss to f3j). Dog, 2.0 to 4.0 c. c. (f3ss to f3j).

### RHEUM.

**RHUBARB.** Natural order, POLYGONACEÆ. Habitat, China.

**DESCRIPTION.**—Rhizome of *Rheum officinale* and other species of rheum. Plant resembles yellow dock. Chinese, Russian, and European varieties. Flat or watchglass shaped; muddy-brown color; external surface, velvety. Have holes in the centre to string them on while drying. Odor, aromatic and characteristic. Taste, bitter and astringent. Powder, yellow to a reddish brown. It has three acids: *tannic*, *gallic*, and *chrysophanic*. The latter is insoluble in cold water, and slightly soluble in hot water. Rhubarb is incompatible with most of the acids, salts of iron, acetate of lead, nitrate of mercury, nitrate of silver, and quinine.

**OFFICIAL PREPARATIONS.**—Extractum Rhei, Extractum Rhei Fluidum, Tinctura Rhei, Tinctura Rhei Aromatica, and Syrupus Rhei Aromatica.

**THERAPEUTIC ACTION.**—Stomachic, tonic, and purgative, followed by an astringent action due to the tannic and gallic acids.

**DOSE.**—Adult, 0.13 to 2.0 gm. (gr. ij to gr. xxx). Horse (stomachic), 30.0 to 60.0 gm. (3j to 3ij). Dog (stomachic), 0.3 to 0.6 gm. (gr. v to gr. x). Foal, calf, and dog (purgative), 4.0 to 8.0 gm. (3j to 3ij).

### SANGUINARIA.

**SANGUINARIA, Bloodroot.** Natural order, PAPAVACEÆ. Habitat, woods of North America.

**DESCRIPTION.**—Rhizome of *Sanguinaria Canadensis*. Cylindrical pieces 2 inches long,  $\frac{1}{2}$  to  $\frac{3}{4}$  inch in diameter. Irregularly ringed and wrinkled. Slight odor; reddish-brown color. Taste, bitter and acrid; bark thin. Internally it has a waxy, whitish appearance, with numerous small, red resin-cells. Yields its activity to water and alcohol. Alkaloid, *sanguinarine*.

OFFICIAL PREPARATIONS. — Extractum Sanguinariæ Fluidum and Tinctura Sanguinariæ.

THERAPEUTIC ACTION.—Emetic, stimulant, and expectorant.

DOSE.—*Tincture*.—Adult, 1.0 to 2.0 c. c. (*mv* to *mxxx*). Horse, 4.0 to 8.0 c. c. (*f3j* to *f3ij*). Dog and cat, 0.65 to 1.3 c. c. (*mx* to *mxx*).

### SARSAPARILLA.

SARSAPARILLA. Natural order, LILIACEÆ. Habitat, tropical America.

DESCRIPTION.—Root of *Smilax officinalis* and other varieties of *Smilax*. Bundles of roots about 1 inch in thickness. Externally, orange brown; internally, white and starchy. Odorless, bitterish taste; several varieties, all act the same therapeutically. Yields its activity to boiling water and alcohol.

OFFICIAL PREPARATIONS. — Decoctum Sarsaparillæ Compositum, Extractum Sarsaparillæ Fluidum, and Extractum Sarsaparillæ Fluidum Compositum.

THERAPEUTIC ACTION.—Alterative.

DOSE.—*Compound Decoction*.—Adult, 30.0 to 60.0 c. c. (*f3j* to *f3ij*). Horse, 120.0 to 240.0 c. c. (*f3iv* to *f3viiij*).

*Fluid Extract*.—Dog, 2.0 to 4.0 c. c. (*mxxxii* to *f3j*).

*Compound Syrup*.—Dog, 3.0 to 15.0 c. c. (*mxlviiij* to *f3iv*).

### SASSAFRAS MEDULLA.

SASSAFRAS PITH. Natural order, LAURINEÆ. Habitat, North America.

DESCRIPTION. — Pith of stems of *Sassafras variifolium*. Slender, cylindrical pieces; irregular;  $\frac{1}{8}$  to  $\frac{1}{4}$  inch in diameter. Spongy and light, white or creamy white. Mucilaginous; taste like sassafras. Contains a mucilage which is soluble in water.

OFFICIAL PREPARATION.—Mucilago Sassafras Medullæ.







**THERAPEUTIC ACTION.**—Demulcent. Mucilage is used as a local application for inflamed eyes. It is composed of 2.0 gm. (3ss) pith to 120.0 c. c. (f℥iv) of water.

### SCAMMONIUM.

**SCAMMONY.** Natural order, CONVOLVULACEÆ. Habitat, Western Asia.

**DESCRIPTION.**—A resinous exudation from the living root of *Convolvulus Scammonia*. Very little, if any, absolutely pure resin of scammony ever reaches this market, except that brought by travelers as specimens, it being adulterated by the natives who collect it or by the “scammony makers” of Smyrna. Scammony is in irregular angular pieces or circular cakes of a greenish-gray or blackish color. Internal structure is porous and resinous, taste is acrid, and the odor resembles that of cheese. Forms a green emulsion with water and is soluble in ether to the extent of about 80 per cent. Resin and gum are the principal constituents, the former being present to the extent of from 80 to 95 per cent. The resin is termed *scammonin*.

**PREPARATION.**—In June the earth is cleared away from the roots and the top is cut off obliquely at about 2 inches below the stem. The milky juice exudes and is collected in shells. Only a small quantity, a few drachms at most, is collected from each root. After the juice is collected in a suitable vessel it is allowed to harden by exposure to the air.

**THERAPEUTIC ACTION.**—An active hydragogue cathartic, chiefly administered combined with other cathartics.

**DOSE.**—Adult, 0.13 to 0.32 gm. (gr. ij to gr. v). Dog, 2.0 to 4.0 gm. (3ss to 5j). Cat, 1.0 to 2.0 gm. (gr. xv to gr. xxx).

### SCILLA.

**SCILLA, Squill.** Natural order, LILIACEÆ. Habitat, Europe.

**DESCRIPTION.**—Bulb of *Urginea maritima*. A pear-shaped bulb, ranging from a small size to that of a muskmelon. In-

odorous. Taste is bitter and acrid. The scales are slightly translucent. Besides a glucoside, *scillain*, it contains mucilage, sugar, and a number of active principles. This bulb yields its virtues to acetic acid, water, and alcohol. Are two varieties: red and white, difference only in color of covering.

OFFICIAL PREPARATIONS.—*Extractum Scillæ Fluidum*, *Tinctura Scillæ*, and *Acetum Scillæ*.

ACTIVE PRINCIPLE.—*Scillain*, soluble in water, alcohol, and acetic acid. Small, yellow crystals; no odor; bitter taste.

THERAPEUTIC ACTION.—Hydragogue diuretic, emetic, and expectorant. Poisonous in overdoses.

DOSE.—*Syrup*.—Adult, 2.0 to 4.0 c. c. (f3ss to f3j). Horse, 15.0 to 30.0 c. c. (f3ss to f3j). Dog, 2.0 to 4.0 c. c. (mxxx to f3j). Tincture, half these doses.

### SCOPARIUS.

SCOPARIUS, Broom. Natural order, LEGUMINOSÆ. Habitat, Western Asia and Europe.

DESCRIPTION.—Tops of *Cytisus Scoparius*. Thin, flexible, greenish, pentagonal twigs; tough and wrinkled longitudinally. Bitter taste; yields its activity to water and alcohol.

OFFICIAL PREPARATION.—*Extractum Scoparii Fluidum*.

ACTIVE PRINCIPLES.—*Sparteine*, a bitter, colorless, liquid alkaloid, which is a cardiac stimulant. Also *scoparin*, a crystalline alkaloid having diuretic and purgative action.

THERAPEUTIC ACTION.—Diuretic, purgative, and cardiac stimulant.

DOSE.—*Fluid Extract*.—Adult, 1.2 to 2.5 c. c. (mxx to mxl). Horse, 15.0 to 20.0 c. c. (f3iv to f3v). Dog, 0.5 to 1.0 c. c. (mvij to mxv).

### SENEGA.

SENEGA. Natural order, POLYGALEÆ. Habitat, United States.

DESCRIPTION.—Root of *Polygala Senega*. Varies in size. Head enlarged, thick, and knotty, having scars showing where





rootlets were attached. Tapering, branched, and twisted; one characteristic is a keel-like line along the body. Color from a brown to a yellowish brown. Aromatic odor and a sweet taste; afterward acrid. Yields its active principles to alcohol and water. Active principle is identical with saponin, the principle of soap-bark, and is called *polygalic acid*.

OFFICIAL PREPARATION.—*Extractum Senegæ Fluidum*.

THERAPEUTIC ACTION.—Stimulant and expectorant.

DOSE.—*Fluid Extract*.—Adult, 0.6 to 1.3 c. c. (*mx* to *mxx*). Horse, 10.0 to 15.0 c. c. (*f3iiss* to *f3iv*).

*Syrup*.—Adult, 5.0 to 10.0 c. c. (*mlxxv* to *f3iiss*). Horse, 30.0 to 90.0 c. c. (*f3j* to *f3iij*). Dog, 3.5 to 7.0 c. c. (*mlij* to *mcv*).

*Compound Syrup (Expectorant)*.—Adult, 1.25 to 2.0 c. c. (*mxx* to *mxxxii*). Horse, 30.0 to 90.0 c. c. (*f3j* to *f3iij*). Dog, 1.0 to 2.0 c. c. (*mxvj* to *mxxxij*).

## SENNA.

SENNA. Natural order, LEGUMINOSÆ. Habitat, East and Central Africa.

DESCRIPTION.—Leaflets of *Cassia angustifolia* (Indian senna), sometimes called Tinneveli, and of *Cassia acutifolia* (Alexandria senna), 2 inches long. Leaflets all more or less lanceolate. Brittle; pointed; grayish-green color; nauseous, bitter taste. Entire margin. Former varieties are shorter than the latter. Yield their activity to water and alcohol. The mineral and vegetable acids and the alkalies are incompatible with preparations of senna.

OFFICIAL PREPARATIONS.—*Extractum Sennæ Fluidum*, *Pulvis Glycyrrhizæ Compositus*, *Infusum Sennæ Compositum*, and *Syrupus Sennæ*.

ACTIVE PRINCIPLE.—*Cathartic acid*. This acid is amorphous and black in color and almost insoluble in alcohol and water.

THERAPEUTIC ACTION.—Laxative and purgative; causes griping; best combined, on that account, with the salines and carminatives.

DOSE.—*Powder*.—Adult, 2.0 to 12.0 gm. (gr. xxx to 3iij). Dog, 4.0 to 8.0 gm. (3j to 3ij).

*Syrup*.—Adult, 5.0 to 20.0 c. c. (f3j to f3iv). Dog, 12.0 to 20.0 c. c. (f3iss to f3iv).

### SERPENTARIA.

SERPENTARIA, Virginia Snakeroot. Natural order, ARISTOLOCHIACEÆ. Habitat, hilly woods of United States.

DESCRIPTION.—Rhizome of *Aristolochia serpentaria*, 1 inch long; thin, bent remnants of overground stem on the upper side. Rhizome, yellowish brown; internally, creamy white. Aromatic odor and taste. Contains a volatile oil, a bitter principle, some tannin, starch, and sugar.

OFFICIAL PREPARATIONS.—Extractum Serpentariæ Fluidum, Tinctura Cinchonæ Composita, and Tinctura Serpentariæ.

THERAPEUTIC ACTION.—Stimulant, tonic, and diaphoretic.

DOSE.—*Fluid Extract*.—Adult, 0.6 to 2.0 c. c. (mx to mxxx). Horse and cattle, 3.0 c. c. (mxlv). Dog, 0.33 to 2.0 c. c. (mv to mxxx).

### SINAPIS ALBA.

SINAPIS ALBA, White Mustard. Natural order, CRUCIFERÆ. Habitat, Asia and southern Europe.

DESCRIPTION.—Seeds of *Brassica alba*. Globular;  $\frac{1}{10}$  inch in diameter; straw color; little or no odor; pungent, biting taste. Contains an acrid fixed principle which makes up for the lack of volatile oil. The mustard-flower is shaped like a Maltese cross.

### SINAPIS NIGRA.

SINAPIS NIGRA, Black Mustard.

DESCRIPTION.—Seeds of *Brassica nigra*, about half the size of white mustard. Testa, brownish black and hard; dry, no odor, but when moistened a very irritating one. No difference in the medicinal properties, although the black is much stronger, and contains a *volatile oil* not found in the white. Both varieties contain a fixed oil. The volatile oil obtained by distilling the







seeds is the most pungent of all the volatile oils, and produces a fatal gastroenteritis. Externally the volatile oil is a prompt vesicant.

**THERAPEUTIC ACTION.**—Stomachic, best vegetable emetic, and carminative. Externally a vesicant, rubefacient, and counter-irritant.

**DOSE.**—*Stomachic and Carminative.*—Adult, 0.3 to 0.6 gm. (gr. v to gr. x). Horse, 16.0 to 24.0 gm. (3iv to 3vj). Cattle, double the dose for the horse. Dog, 0.65 to 1.3 gm. (gr. x to gr. xx).

*Emetic.*—*Ad libitum.*

## SODIUM.

### Sodium and its Salts.

**SODIUM, Natrium (Na).** Metallic sodium is not official.

### Sodii Arsenas.

**ARSENATE OF SODIUM ( $\text{Na}_2\text{HAsO}_4$ ).**

**DESCRIPTION.**—Colorless, transparent crystals; acrid, saline taste; odorless; alkaline reaction. Incompatible with soluble salts of zinc, lead, and silver, and with chloride of calcium.

**PREPARATION.**—By fusing arsenous acid with nitrate and carbonate of sodium.

**OFFICIAL PREPARATION.**—*Liquor Sodii Arsenatis.*

**THERAPEUTIC ACTION.**—Same as arsenous acid, but less powerful. May be administered in water, as it is almost tasteless in solution.

**DOSE.**—*Liquor.*—Same as Fowler's solution.

### Sodii Bicarbonas.

**BICARBONATE OF SODIUM ( $\text{NaHCO}_3$ ).** The acid carbonate.

**DESCRIPTION.**—When pure, is a snow-white permanent powder. Soluble in water, and has an alkaline taste. Incom-

patible with all acids, lime-water, earths, and mineral acids, and all soluble lead salts.

**PREPARATION.**—By purifying the commercial salt, which is obtained by lixiviating marine plants or by impregnating sodium carbonate with carbonic-acid gas.

**OFFICIAL PREPARATIONS.**—Mistura Rhei et Sodæ and Trochisci Sodii Bicarbonatis.

**THERAPEUTIC ACTION.**—Antacid, antilithic, and resolvent.

**DOSE.**—Adult, 0.3 to 2.0 gm. (gr. v to gr. xxx). Horse and cattle, 8.0 to 32.0 gm. (3ij to 3j). Dog, 0.66 to 2.0 gm. (gr. x to gr. xxx).

### Sodii Boras.

**BORATE OF SODIUM, Sodium Boras, or Borax ( $\text{Na}_2\text{B}_4\text{O}_7$ ).**

**DESCRIPTION.**—The native salt is found in Europe, Peru, Ecuador, and California. Crude borax is called *tincal* and is purified by being dissolved, filtered, and recrystallized. Flat-tened, six-sided crystals; triangular top; white or opaque. Soluble in water, about neutral or slightly alkaline. Contains 2 parts of boric acid, 1 of sodium, and 10 of water of crystallization. Incompatible with alkaloids, mineral acids, lead salts, and potassium iodide. Used as a powder or in solution.

**THERAPEUTIC ACTION.**—Antiseptic, diuretic, refrigerant, and disinfectant.

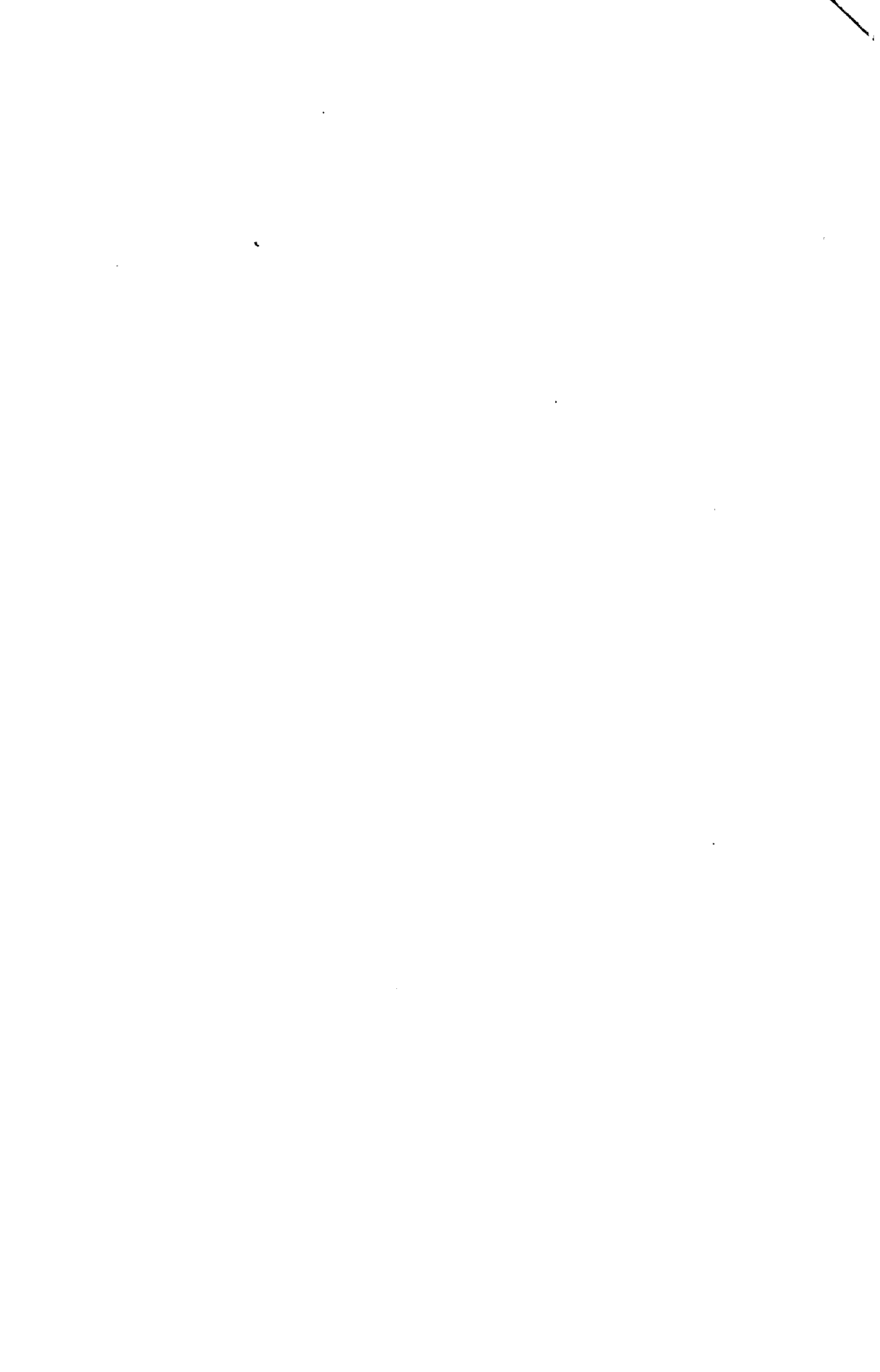
**DOSE.**—Adult, 0.3 to 2.0 gm. (gr. v to gr. xxx). Horse, 4.0 to 15.0 gm. (3j to 3iv). Dog, foal, and calf, 1.3 to 2.0 gm. (gr. xx to gr. xxx).

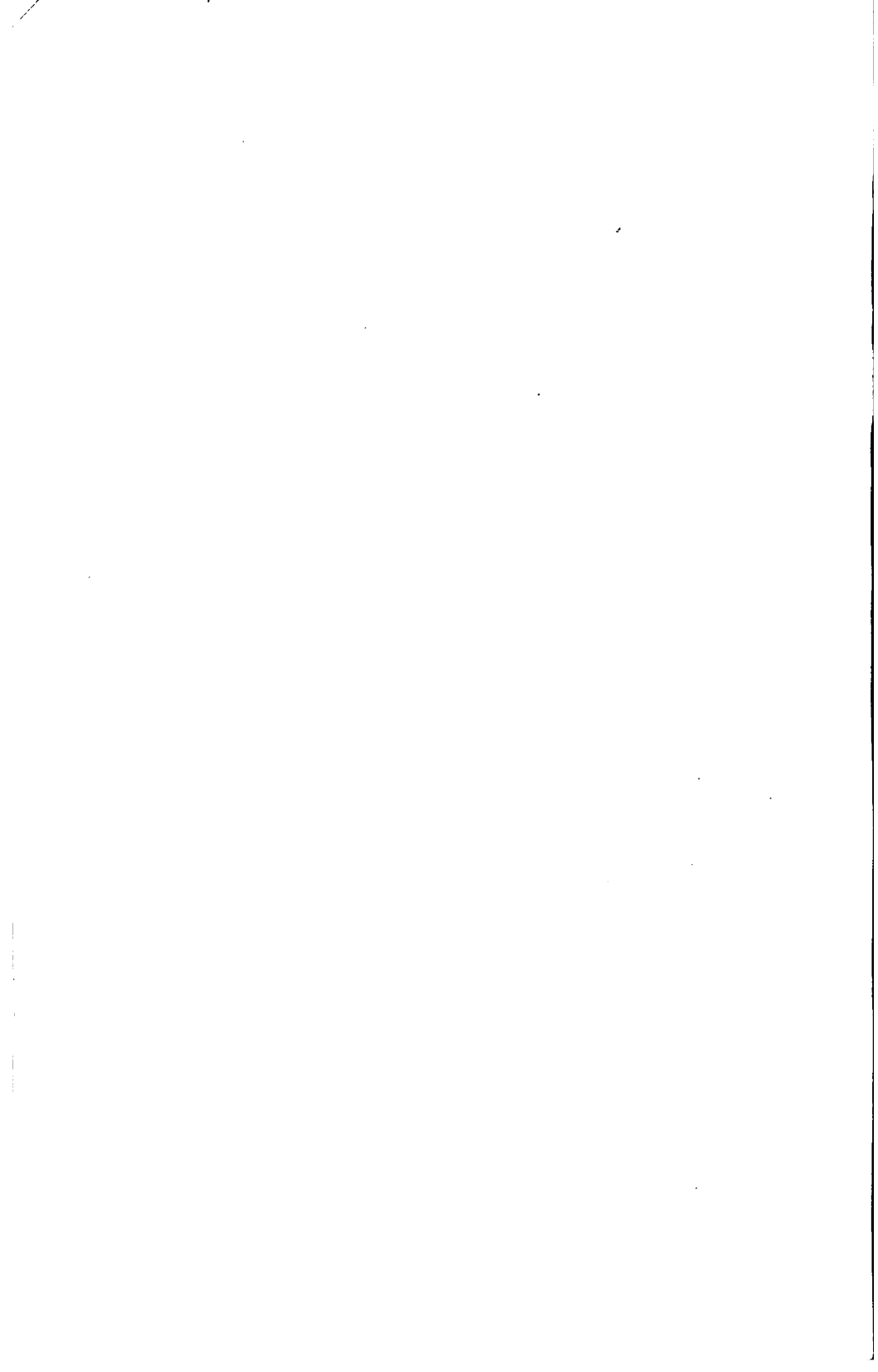
### Sodii Hyposulphis.

**HYPOSULPHITE OF SODIUM ( $\text{Na}_2\text{S}_2\text{O}_3 + \text{H}_2\text{O}$ ).**

**DESCRIPTION.**—Large, white, transparent crystals, with mild, saline taste and little or no odor. Soluble in water, but insoluble in alcohol.

**PREPARATION.**—By fusing together dry sodium carbonate and sulphur, and stirring constantly. The sulphate formed is





converted into a sulphite; this is then dissolved in water, boiled with sodium, and thus converted into a hyposulphite.

**THERAPEUTIC ACTION.**—Same as sulphite, except that hyposulphite is twice as strong.

**DOSE.**—One-half that given for sulphite.

### **Sodii Sulphas.**

**SULPHATE OF SODIUM**, Glauber's Salt ( $\text{Na}_2\text{SO}_4 + 10\text{H}_2\text{O}$ ).

**DESCRIPTION.**—Present in most mineral springs and sea-water. Colorless; cooling, bitter taste; better for man than Epsom salt. Hexagonal prisms; transparent when fresh; on exposure deliquesces, then effloresces. Soluble in water; insoluble in alcohol. Incompatible with carbonates of potassium, acetate and subacetate of lead, nitrate of silver, and alkaloidal salts.

**THERAPEUTIC ACTION.**—Cathartic, aperient, diuretic, and refrigerant. Nonirritating and stimulating to the intestines. Some cholagogue action when given in small doses diluted with water.

**DOSE.**—Adult, 15.0 to 30.0 gm. (℥iv to ℥j). Horse, 128.0 to 480.0 gm. (℥iv to ℥xvj). Cattle, double the dose for the horse. Sheep, 64.0 to 128.0 gm. (℥ij to ℥iv). Should be succeeded by a drink of water. Diuretic dose, one-fourth, repeated every two or three hours, with plenty of water.

### **Sodii Sulphis.**

**SULPHITE OF SODIUM** ( $\text{Na}_2\text{SO}_3$ ).

**DESCRIPTION.**—Contains 7 parts of water of crystallization. White and transparent rhomboidal crystals which effloresce in the air; slight, sulphurlike odor; taste, cooling and similar to sulphur. It is soluble in water. It is eliminated by the skin and kidneys in the form of a sulphate.

**PREPARATION.**—By passing  $\text{H}_2\text{SO}_3$  gas through a solution of sodium carbonate. Concentrated by heat, and then salt crystallizes. All preparation done in a vacuum.

**THERAPEUTIC ACTION.**—Antiseptic, deodorizer, insecticide, and antiferment. The therapeutic action is due to the sulphurous acid it contains.

**DOSE.**—Adult, 0.3 to 1.3 gm. (gr. v to gr. xx). Horse and cattle, 16.0 to 64.0 gm. (℥ss to ℥ij). Pig and sheep, 2.0 to 8.0 gm. (℥ss to ℥ij). Dog, 0.5 to 2.0 gm. (gr. viij to gr. xxx).

### SPIGELIA.

**SPIGELIA**, Pinkroot, Maryland Pink. Natural order, LOGANIACEÆ. Habitat, rich woods of the United States.

**DESCRIPTION.**—Rhizome and rootlets of *Spigelia Marylandica*. Rhizome has a knotty head, and shows cup-shaped scars. On lower side are numerous rootlets 3 to 5 inches long, wrinkled, crooked, and slender. Externally, brownish; internally, cream color. Taste, aromatic, sweetish, and bitter. Odor, faint and aromatic. Yields its active principles to alcohol and water.

**OFFICIAL PREPARATION.**—Extractum Spigeliæ Fluidum.

**THERAPEUTIC ACTION.**—Anthelmintic. Not poisonous.

**DOSE.**—*Fluid Extract.*—Adult, 2.0 to 8.0 c. c. (mxxx to f3ij). Dog, 3.75 to 11.25 c. c. (f3j to f3iij). Cat, two-thirds the dose for the dog.

### STAPHISAGRIA.

**STAVESACRE**, Louse Seeds (unofficial). Natural order, RANUNCULACEÆ. Habitat, Southern Europe.

**DESCRIPTION.**—Seeds of *Delphinium Staphisagria*. Flat-tish, convex on sides,  $\frac{1}{8}$  inch long and  $\frac{1}{8}$  to  $\frac{1}{6}$  inch broad. Testa, brownish. Internally, white and albuminous. Disagreeable odor; taste, bitter and acrid. Two alkaloids: *delphinine* and *staphisagrine*.

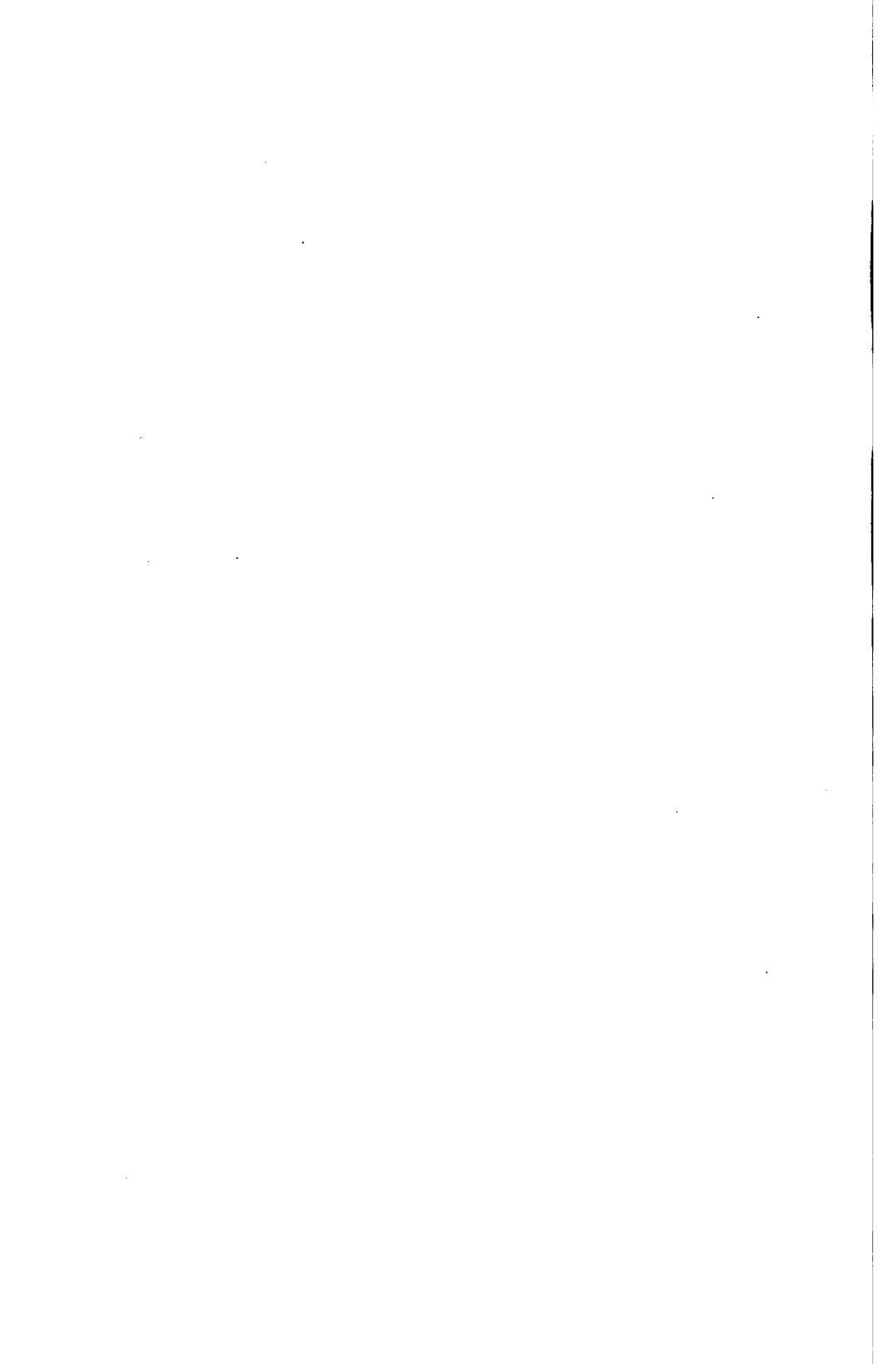
**THERAPEUTIC ACTION.**—Cathartic, emetic, diuretic, and poisonous. Externally a rubefacient and parasiticide.

### STRAMONII FOLIA.

**STRAMONIUM-LEAVES.** Natural order, SOLANACEÆ. Habitat, Arabia and Asia; naturalized in most countries.







SYNONYMS.—Jamestown Weed, Jimson Weed.

DESCRIPTION.—Leaves of *Datura Stramonium*, gathered when the plant has come in flower. There are two kinds: one with a green stem and white flower and the other with a dark-red stem and purplish flower. Leaves petiolate and 6 inches long; smooth, pointed, and irregularly toothed. Odor unpleasant and taste bitter and tobacco-like. Yield their activity to water and alcohol.

THERAPEUTIC ACTION.—Same as the seed.

### STRAMONII SEMEN.

#### STRAMONIUM-SEEDS.

DESCRIPTION.—Dried seeds of *Datura Stramonium*, brownish black,  $\frac{1}{6}$  inch long, concavo-convex, and externally pitted. Internally, white and oily. Odorless; taste, oily and bitter. Four to five times the strength of the leaves.

OFFICIAL PREPARATIONS.—Extractum Stramonii Seminis, Extractum Stramonii Seminis Fluidum, Tinctura Stramonii Seminis.

ACTIVE PRINCIPLE.—Daturine. From seeds  $\frac{2}{10}$  of 1 per cent., and from leaves  $\frac{2}{100}$  of 1 per cent. of this alkaloid. Colorless, odorless, shining crystals, with taste like tobacco. Soluble in alcohol and ether. Three times the strength of atropine, with which it is almost identical.

THERAPEUTIC ACTION.—Diuretic, mydriatic, narcotic, and antispasmodic. Poison. Identical with belladonna and hyoscyamus; all three alkaloids are the same.

TOXICOLOGY and treatment same as belladonna.

DOSE.—*Leaves*.—Same as belladonna.

*Seeds*.—One-third to one-fourth less than that of the leaves.

### STROPHANTHUS.

STROPHANTHUS. Natural order, APOCYNACEÆ. Habitat, Western Africa.

DESCRIPTION.—Seed of *Strophanthus hispidus* and other varieties of strophanthus deprived of its awn. This is a tropical

climbing shrub bearing pods containing seeds which are covered with numerous hairs. It is from this species of plants that the Kombé arrow-poison is believed to be obtained. A crystalline, glucosidal principle called *strophanthin* has been isolated from these seeds. They are about 15 millimetres long and 5 millimetres wide, oblong and lanceolate, flattened, and covered with silky hairs. They are inodorous, and have an extremely bitter, nauseous taste. The hilum extends as a ridge along one side to a pointed end. Alcohol and water extract their virtues.

OFFICIAL PREPARATION.—*Tinctura Strophanthi*.

THERAPEUTIC ACTION. — Cardiac stimulant and muscle-poison.

TOXICOLOGY.—Overdoses of *strophanthus* produce gastric and intestinal disturbances accompanied by vomiting. It is not cumulative in its action and is much more fugacious than *digitalis*, its action coming on and passing off quickly. As regards antidotes we can say little, as this portion of the subject has not as yet been thoroughly studied.

DOSE. — *Tincture*. — Adult, 0.28 to 0.55 c. c. (*mv* to *mx*). Horse, 2.0 to 4.0 c. c. (*mxxx* to *f5j*). Dog and cat, 0.1 to 0.5 c. c. (*mij* to *mx*).

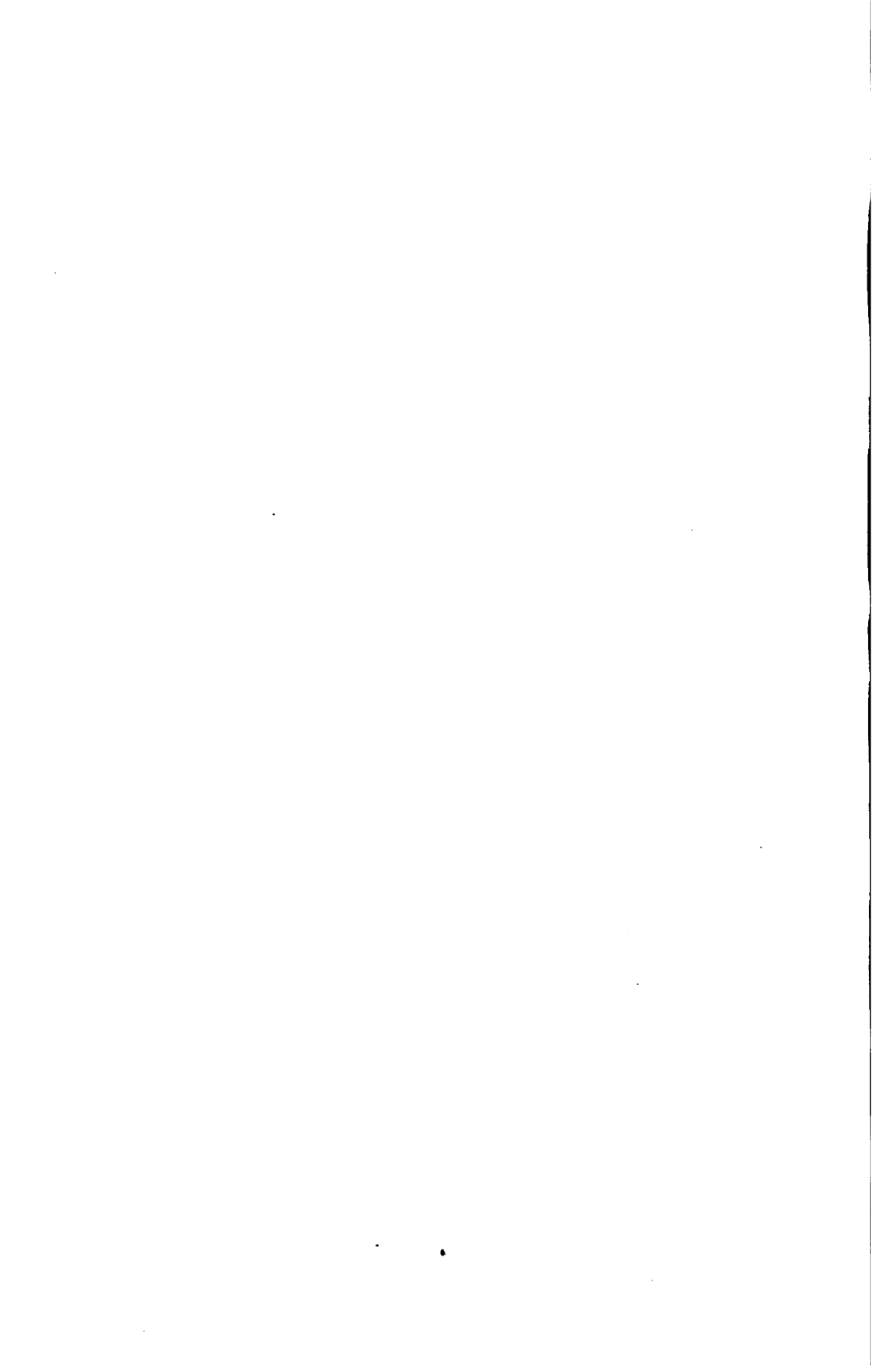
### SULPHUR SUBLIMATUM.

SUBLIMED SULPHUR (S). Sp. gr., 2.

DESCRIPTION. — Sulphur purified by sublimation. Found in animal and vegetable kingdoms. A fine, yellow powder. Slight odor and faintly acid taste. Fuses at 82.2° C. Pure sulphur melts at 115.5° C. Insoluble in water; slightly so in absolute alcohol. Soluble in bisulphide of carbon, ignites at 148° C., and burns with a dull-blue flame. Mixes readily with molasses. When sublimed sulphur is washed with water it is called *sulphur lotum*.

PREPARATION.—Extracted from the native sulphur (*iron or copper pyrites*). Placed in iron pots with iron tubes connecting other vessels, which are perforated, and the melted sulphur passes through into water. When poured into cylindrical molds it hardens in sticks and is called *roll sulphur*.





**THERAPEUTIC ACTION.** — Laxative, alterative, diaphoretic, and parasiticide. Eliminated by the skin and most secretions of the body.

**DOSE.**—Adult, 4.0 to 12.0 gm. (3j to 3iij). Horse (laxative), 32.0 to 64.0 gm. (3j to 3ij). Cow, 96.0 to 180.0 gm. (3iij to 3vj). Dog, 4.0 to 16.0 gm. (3j to 3iv). Sheep and pig, 16.0 to 32.0 gm. (3iv to 3viiij). As alterative, one-fourth these doses.

### TEREBINTHINA.

#### Turpentine and Other Drugs Derived from the Coniferæ.

Natural order, CONIFERÆ.

#### Oleum Picis Liquidæ.

##### OIL OF TAR.

**DESCRIPTION.**—Limpid. Tarlike odor; piny taste; brown or black, and, after being purified, a light-brown color.

**PREPARATION.**—By distillation of tar.

**DOSE.**—Horse, 0.6 to 1.0 c. c. (mx to mxvj).

#### Oleum Terebinthina.

**OIL OF TURPENTINE** ( $C_{10}H_{16}$ ). Sp. gr., 860.

**DESCRIPTION.**—Volatile oil obtained by distilling white turpentine. Transparent, mobile liquid; penetrating, piny odor. Bitter taste. Inflammable; soluble in ether. Chemically a hydrocarbon.

**PREPARATION.**—By distilling terebinthina alba.

**OFFICIAL PREPARATIONS.**—Linimentum Terebinthinæ and Oleum Terebinthinæ Rectificatum.

**THERAPEUTIC ACTION.**—Stimulant diuretic, antispasmodic, anthelmintic, general stimulant, has an action on the circulatory system, and also is an expectorant and carminative. Externally a counter-irritant.

**DOSE.**—*Stimulant and Antispasmodic.*—Adult, 0.12 to 2.0 c. c. (mij to mxxx). Horse, 20.0 to 60.0 c. c. (f3v to f3ij). Dog, 0.6 to 2.0 c. c. (mx to mxxx).

*Diuretic*.—Horse, 60.0 to 120.0 c. c. (fʒij to fʒiv).

*Anthelmintic for Roundworm*.—Horse, 60.0 c. c. (fʒij), combined with aloes and linseed-oil. Dog, 1.0 to 4.0 c. c. (mxx to fʒj).

Used externally with hot water, as a stupe; and with ammonia, soap liniment, or some bland oil for local application.

### Pix Liquida.

#### WOOD-TAR.

**DESCRIPTION.**—The impure turpentine from the wood of various species of *Pinus*. Brownish black, aromatic liquid. Contains resin, impure acetic acid, and oil of turpentine; black color is due to charcoal. When distilled yields pyroligneous acid and oil of turpentine.

**PREPARATION.**—From roots and wood of pine-tree by destructive distillation.

**THERAPEUTIC ACTION.** — Tar has the same therapeutic action as oil of turpentine, and depends upon the volatile oil for this action. It is antiseptic, diuretic, and expectorant.

### Resina.

**RESIN.** That part of white turpentine left after the oil has been distilled off. A base for cerates and ointments. Two varieties: red and white.

#### Terebinthina Alba.

**WHITE, or AMERICAN, TURPENTINE.** Habitat, Virginia and North Carolina.

**DESCRIPTION.** — Concrete oleoresin of *Pinus palustris*. Yellowish-white, irregular mass; softens by heat; consists of oil of turpentine and resin. Little or no odor when cold; strong, bitter, piny taste. When fresh it contains 17 per cent. of oil of turpentine and 83 per cent. of resin.

**PREPARATION.**—Holes of a capacity of three or four pints are cut in the trunks of pine-trees in winter, and the juice







transudes into and fills them. It is poured into casks from time to time and hardens from exposure to air.

### **Terebinthina Canadensis.**

CANADA TURPENTINE, Balsam of Fir. Habitat, Maine and Canada.

DESCRIPTION.—Product of *Abies balsamea*. Colorless, transparent liquid; thinner than castor-oil; odor, strong and piny; taste, bitter. It is composed of resin and oil, and contains more oil than white turpentine.

PREPARATION. — Obtained by breaking the vesicles on the trunks of the trees and collecting the contents in bottles.

### **Terebinthina Veneta.**

VENICE TURPENTINE. Habitat, France and Switzerland.

DESCRIPTION.—From *Larix Europæa*, or European larch-tree. Viscid; strong balsamic terebinthinate odor; rarely transparent; soluble in alcohol, but insoluble in water. Yellowish-green or brownish color; acrid, bitter taste.

PREPARATION.—Obtained by boring holes in trees, whereupon juice exudes, which is caught in tubs and strained.

THERAPEUTIC ACTION.—All turpentes are stimulant diuretics, antispasmodics, anthelmintics, and local irritants. Internally turpentine is absorbed and acts as a general stimulant to the circulatory system, genito-urinary tract, and respiratory tract. The Canada variety has the most pronounced action, the Venice the next, and the American least, the action being governed by the amount of volatile oil each contains.

DOSE.—*American*.—Adult, 0.3 to 0.6 gm. (gr. v to gr. x). Horse and cattle, 16.0 to 96.0 gm. (3iv to 3iij). Dog, 1.0 to 4.0 gm. (gr. xv to gr. lx).

### **Terpini Hydras.**

TERPIN HYDRATE, Terebene ( $C_{10}H_{18}[OH]_2$ ).

DESCRIPTION.—A hydrate of the diatomic alcohol terpin. Colorless rhombic prisms. Nearly odorless. Slightly aromatic,

bitter taste. Soluble in 250 parts of water and 10 parts of alcohol.

PREPARATION. — Produced by oxidizing oil of turpentine with sulphuric acid.

THERAPEUTIC ACTION.—It has all the therapeutic actions of the oil.

DOSE.—Same as oil of turpentine.

### THYMOL.

THYMOL ( $C_{10}H_{14}O$ ). Sp. gr., 1.069.

DESCRIPTION.—A phenol obtained from the volatile oil of *Thymus vulgaris* and other species of thymus by fractional distillation. Thymol occurs in large, hexagonal crystals which are colorless and translucent; the odor is thymelike and aromatic; the taste is warm, pungent, and aromatic. It liquefies at  $50^{\circ} C$ . It is soluble in 1200 parts of water; and freely soluble in chloroform, other alcoholic liquids, and in fixed and volatile oils.

THERAPEUTIC ACTION.—Stimulant and antiseptic. Used chiefly externally.

### ULMUS.

ELM-BARK. Natural order, URTICACEÆ. Habitat, United States.

DESCRIPTION.—Inner bark of *Ulmus fulva*, a tall tree with a thick stem, which grows in all parts of the United States north of the Carolinas. It is in flat or curved pieces,  $\frac{1}{8}$  inch thick, tough, tan-colored, inner surface finely ribbed, and with slight odor resembling fenugreek. Brownish powder. Taste is sweet and mucilaginous. The mucilage is obtained by treating the bark with water.

OFFICIAL PREPARATION.—Mucilago Ulmi.

THERAPEUTIC ACTION.—Demulcent and emollient.

### UVA URSI.

UVA URSI, Bearberry. Natural order, ERICACEÆ. Habitat, dry, sandy places in northern hemisphere.





DESCRIPTION.—Leaves of *Arctostaphylos Uva Ursi*, an evergreen shrub trailing on the ground, which throws off new roots at intervals of a few inches. The latter develop and throw off other roots. Reddish-white flower; small, globular, red berry. Leaves,  $\frac{3}{4}$  to 1 inch long; smooth and glossy on top; dark green beneath, oblong, and spatulate. Margin entire and odor like new hay. Bitter, astringent taste, due to tannic acid, as leaves have 5 to 10 per cent., with some gallic acid and a crystalline principle called *arbutin* (a glucoside), which crystallizes in needle-shaped crystals, and is broken up in the system into glucose and hydrochinon. The latter is a poison, but as the change takes place in the kidneys it is eliminated without being absorbed. Arbutin is soluble in alcohol and hot water.

OFFICIAL PREPARATIONS.—Extractum Uvæ Ursi and Extractum Uvæ Ursi Fluidum.

THERAPEUTIC ACTION.—Astringent and diuretic.

DOSE.—*Fluid Extract*.—Adult, 4.0 to 8.0 c. c. (f5j to f3ij).

*Leaves*.—Horse, 32.0 to 128.0 gm. (3j to 3iv). Dog, 0.66 to 2.0 gm. (gr. x to gr. xxx).

### VALERIANA.

VALERIAN, Great Wild Valerian. Natural order, VALERIANEÆ. Habitat, Europe and northern Asia.

DESCRIPTION.—Root of *Valeriana officinalis*. Large, bushy shrub, terminating in flowering branches. Should be collected in the spring. Has a small head from which grow numerous rootlets. It is  $\frac{3}{4}$  to 1 inch long. Brown externally, paler internally, and of horny texture. The odor is peculiar. The taste is camphorlike. The bark of the rhizome is thin, and is covered by a corky layer. It contains from  $\frac{1}{2}$  to 2 per cent. of volatile oil and valerianic, formic, and acetic acids. The rootlets are brown, slender, and brittle.

OFFICIAL PREPARATIONS.—Extractum Valerianæ Fluidum, Tinctura Valerianæ, and Tinctura Valerianæ Ammoniata.

THERAPEUTIC ACTION.—Antispasmodic and stimulant.

DOSE.—*Fluid Extract*.—Adult, 2.0 to 4.0 c. c. (f3ss to f3j). Horse and cattle, 30.0 to 60.0 c. c. (f3j to f3ij). Dog, 0.4 to 3.0 c. c. (mvj to mxlv).

### VERATRINA.

VERATRINE ( $C_{37}H_{53}NO_{11}$ ). Natural order, LILIACEÆ. Habitat, Mexico to Venezuela.

DESCRIPTION.—A mixture of alkaloids obtained from the seeds of *Asagraea officinalis*. These seeds are narrow and lanceolate in shape, about 6 millimetres ( $\frac{1}{4}$  inch) long, rounded at the lower end, and more or less pointed at the top. The external covering is of a brownish color; internally they are of a dirty-white color and oily. The taste is persistently bitter and acrid. They are odorless. Veratrina is a grayish-white, somewhat lumpy powder having the taste and other properties of the powdered seeds. Merck is said to have obtained veratrina in the form of rhombic prisms about 12.7 millimetres ( $\frac{1}{2}$  inch) long. It is slightly soluble in boiling, but insoluble in cold, water; and is soluble in alcohol, ether, and the dilute acids.

OFFICIAL PREPARATIONS.—Oleatum Veratrinæ and Unguentum Veratrinæ.

THERAPEUTIC ACTION.—Sternutatory, parasiticide, rubefacient, and external stimulant. Veratrina is not used internally.

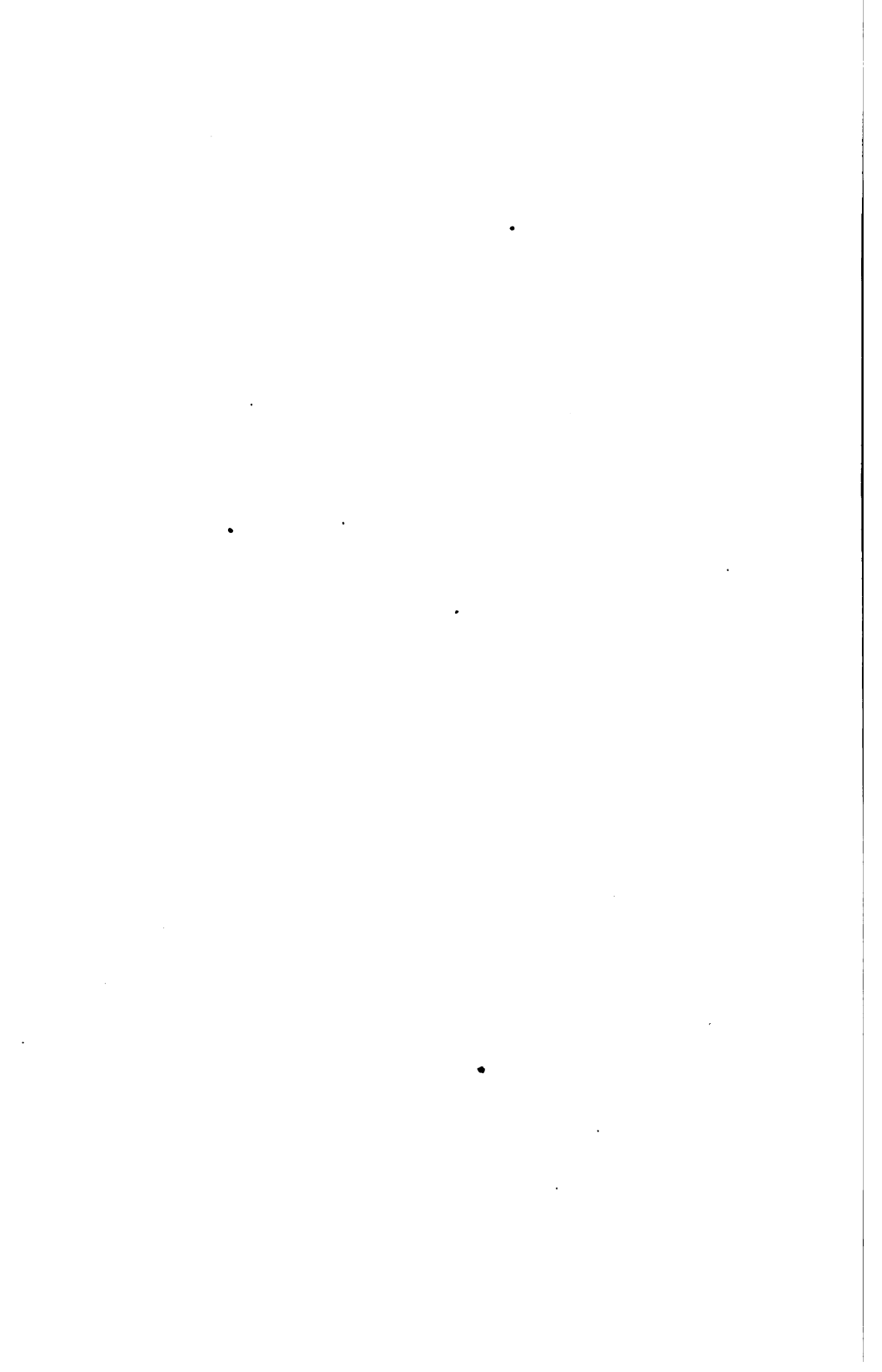
### VERATRUM VIRIDE.

GREEN HELLEBORE, American Hellebore. Natural order, LILIACEÆ. Habitat, woods of North America.

DESCRIPTION.—Rhizome and roots of *Veratrum viride*, which is a plant 3 to 6 feet high, with green leaves, and having a cluster of greenish-yellow flowers. Roots collected in the fall. Rhizome, 2 to 3 inches long, and  $\frac{1}{2}$  to  $\frac{3}{4}$  inch in diameter. Blunt end has a tuft, or overground stem. Externally, dark brown; internally, a smoky color. Dark-colored spots extend across the rhizome. Bitter, acrid taste; odorless. Two alkaloids: *jervine* and *veratroidine*.







OFFICIAL PREPARATIONS.—*Extractum Veratri Viridis Fluidum* and *Tinctura Veratri Viridis*.

THERAPEUTIC ACTION.—Emetic, diaphoretic, cardiac sedative, and powerful sternutatory. Closely allied to aconite, but not so pronounced or rapid. Lessens strength of the pulse by its action on the heart.

TOXICOLOGY.—The symptoms following a poisonous dose of this drug are a fast, almost imperceptible pulse; cold, clammy skin; nausea, vomiting, muscular prostration, vertigo, loss of vision, and more or less complete unconsciousness. The first action is a reduction in the force and later a lessening of the frequency of the pulse, these being followed by the line of symptoms given above.

ANTIDOTE.—Mustard and tepid water as emetics. When stomach is emptied check vomiting. Give enemata of laudanum and doses of whisky or brandy. External capillary circulation must be kept up by stimulation; massage with coarse towel. External heat. Tannic acid.

DOSE.—*Tincture*.—Horse, 0.66 to 3.0 c. c. (*mx* to *mxlv*). Cattle, 2.0 to 4.0 c. c. (*f3ss* to *f3j*).

## ZINC.

ZINCUM (Zn). Sp. gr., 6.8.

DESCRIPTION. — Bluish-white, metallic element, metallic taste, and having a decided odor when heated. Found in Nature as sulphide, silicate, and carbonate. Comes from Germany. Dissolves in sulphuric acid. Mixed with copper makes brass. Never used in medicine in the metallic form.

### Zinci Acetas.

ACETATE OF ZINC ( $\text{Zn}[\text{C}_2\text{H}_3\text{O}_2]_2 + 3\text{H}_2\text{O}$ ).

DESCRIPTION. — Colorless, six-sided, crystalline plates resembling small scales of mica. Freely soluble in water, but sparingly so in alcohol. Astringent, vinegarlike taste.

**PREPARATION.**—By dissolving oxide or carbonate of zinc in strong acetic acid. Filtering, concentrating, and crystallizing.

**THERAPEUTIC ACTION.**—Local sedative and astringent. Resembles the sulphate in its action; seldom used internally.

**DOSE.**—Adult, 0.03 to 0.13 gm. (gr. ss to gr. ij). Horse and cattle, 4.0 to 8.0 gm. (3j to 3ij). Dog, 0.12 to 0.2 gm. (gr. ij to gr. iij).

#### **Zinci Carbonas Præcipitatus.**

##### **PRECIPITATED CARBONATE OF ZINC.**

**DESCRIPTION.**—Combination of carbonate and oxide of zinc. Fine, white, odorless, tasteless powder. Soluble in dilute sulphuric acid. Insoluble in water and alcohol. Used same as the oxide.

**PREPARATION.**—By boiling together sulphate of zinc and carbonate of soda, washing, and drying the precipitate.

#### **Zinci Chloridum.**

**CHLORIDE OF ZINC, Butter of Zinc ( $\text{ZnCl}_2$ ).**

**DESCRIPTION.**—White, granular powder or irregular porcelainlike masses. Dilute solution has an astringent, metallic, bitter taste and chlorinelike odor. Deliquescent. Soluble in ether, alcohol, and water. When heated becomes a liquid and may be sublimed. Coagulates albumin.

**PREPARATION.**—By evaporating the solution of chloride of zinc and fusing the dry mass, after which it is poured on a cold stone to harden.

**THERAPEUTIC ACTION.**—Escharotic, antispasmodic, and disinfectant. Never used internally, as it is a corrosive poison.

#### **Zinci Oxidum.**

**OXIDE OF ZINC ( $\text{ZnO}$ ).**

**DESCRIPTION.**—Odorless, tasteless, white powder. Tendency to adhere to bodies and form crumbly lumps. Insoluble in alcohol and water. Soluble in dilute acids and ammonia-water.





PREPARATION. — By subjecting precipitated carbonate of zinc to a low-red heat, until all water and  $\text{CO}_2$  have been expelled.

OFFICIAL PREPARATION. — Unguentum Zinci Oxidi.

THERAPEUTIC ACTION. — Astringent, desiccant, and anti-spasmodic.

DOSE. — Adult, 0.06 to 0.3 gm. (gr. j to gr. v). Horse and cow, 8.0 to 16.0 gm. (3ij to 3iv). Dog, 0.13 to 0.4 gm. (gr. ij to gr. vj).

### Zinci Sulphas.

SULPHATE OF ZINC, White Vitriol ( $\text{ZnSO}_4$ ).

DESCRIPTION. — Transparent, colorless, and four-sided crystals. Taste, strongly metallic and styptic. Looks like Epsom salt. Efflorescent. Soluble in water and glycerin; insoluble in alcohol.

PREPARATION. — By treating granulated metallic zinc with sulphuric acid.

THERAPEUTIC ACTION. — Astringent, emetic, and tonic, and irritant poison.

DOSE. — *Emetic*. — Adult, 0.6 to 2.0 gm. (gr. x to gr. xxx). Dog and pig, 0.5 to 1.0 gm. (gr. vij to gr. xv).

*Astringent*. — Adult, 0.06 to 0.2 gm. (gr. j to gr. iij). Horse, 4.0 to 12.0 gm. (3j to 3iij). Dog, 0.06 to 0.2 gm. (gr. j to gr. iij). Sheep and pig, 0.6 to 1.0 gm. (gr. x to gr. xv).

### ZINGIBER.

GINGER. Natural order, SCITAMINEÆ. Habitat, India.

DESCRIPTION. — Rhizome of *Zingiber officinale* deprived of its outer covering. Flattened; edges rounded;  $\frac{1}{2}$  inch in diameter in broadest place. Pale-ochre color, irregular shape, and starchy fracture. Internally, yellowish white. Aromatic odor and hot taste. Root irregularly branched; yields its virtues to water and alcohol. Plant is from 2 to 3 feet high; leaves smooth and lanceolate; flowers in bunches, from a long stalk, and of a dingy-yellow color. Constituents are a pungent *resin*, to which it owes its taste, and a *volatile oil*, to which it owes its odor.

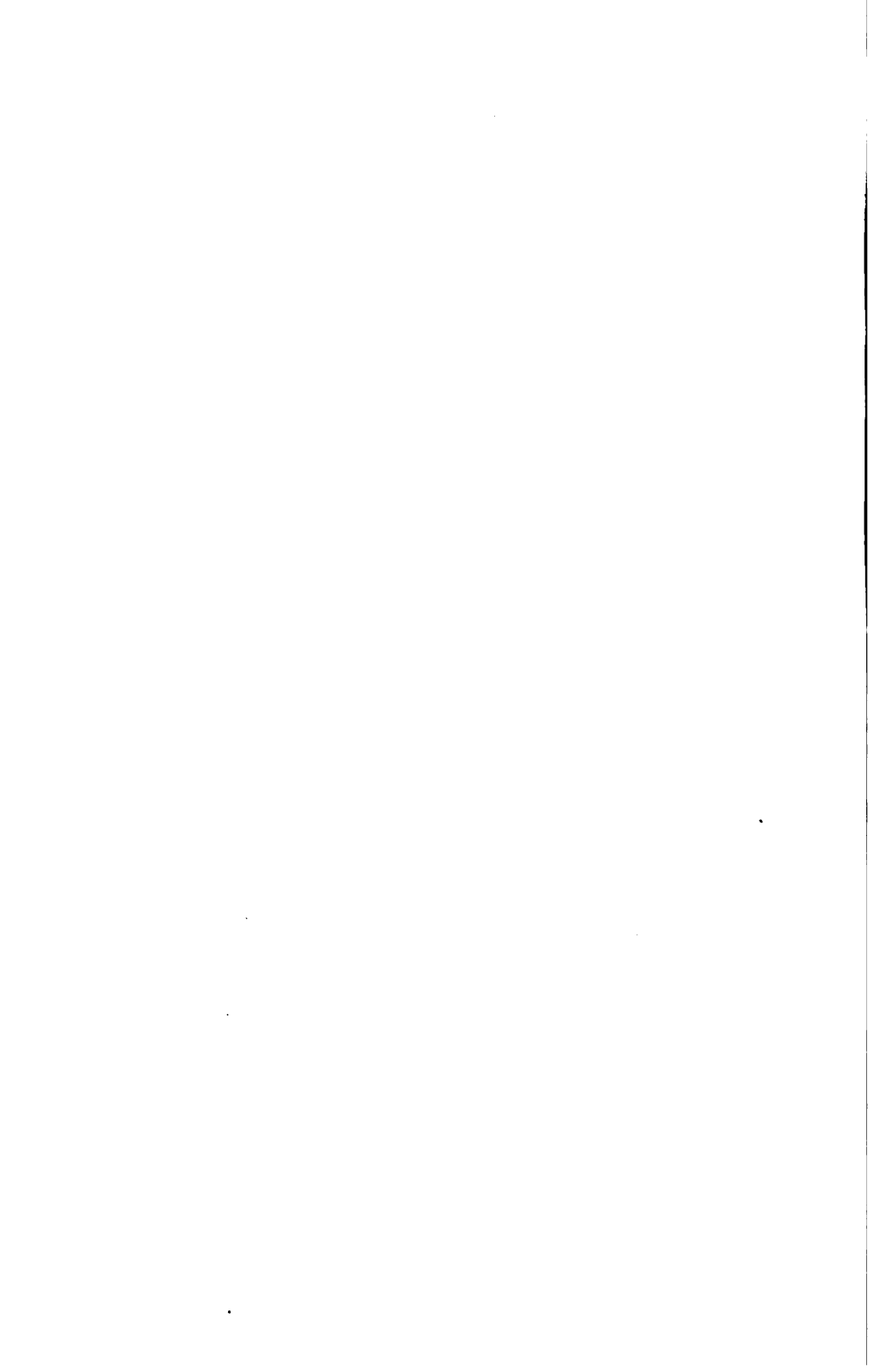
OFFICIAL PREPARATIONS.—Extractum Zingiberis Fluidum, Oleoresina Zingiberis, Pulvis Aromaticus, Tinctura Zingiberis, and Pulvis Rhei Compositus.

THERAPEUTIC ACTION.—Carminative, stomachic, and stimulant.

DOSE.—Adult, 0.3 to 1.0 gm. (gr. v to gr. xv). Horse, 16.0 to 32.0 gm. (℥ss to ℥j). Cattle, 32.0 to 96.0 gm. (℥j to ℥iij). Pig, 2.0 to 4.0 gm. (℥ss to ℥j). Dog, 0.66 to 2.0 gm. (gr. x to gr. xxx). Sheep, 4.0 to 8.0 gm. (℥j to ℥ij).







## **PART III.**

---

### **PHARMACY.**

---

**PHARMACY** is the science which teaches of the selection of drugs and the preparation of medicines, together with the proper mode of dispensing prescriptions.

There are a number of processes to be considered:—

1. To prepare the drugs for exhaustion.
2. To combine them before exhausting.
3. To exhaust them of their active principles.

#### **PROCESSES OF MECHANICAL SUBDIVISION.**

These are the first and the crudest processes to which drugs are subjected.

**SLICING.**—This consists in cutting the crude drug in thin pieces to facilitate drying and to prepare it for further reduction: the first of all pharmaceutical processes.

**BRUISING OR CONTUSION.**—Breaking or crushing a drug by force, usually performed in an iron mortar with a pestle.

**RASPING OR FILING.**—Some drugs, as guaiac, etc., are not readily reduced by the former processes on account of their hardness. These must be reduced by the use of the rasp or file.

**TRITURATION.**—This is performed with a mortar and pestle. It is the effect produced where there is a circular motion and pressure exerted on the pestle at the same time.

**GRINDING AND SIFTING.**—In order properly to exhaust drugs some must be reduced to a finer powder than others on account of their compact texture; hence it is necessary to have some means by which the finer particles can be separated from

the coarser. This object is attained by *grinding* and *sifting*. Sieves that have meshes of different sizes are used for this purpose after the drug has been ground in a suitable mill. These sieves, as well as the powder that passes through them, are designated by numbers, viz.: a No. 20 powder is one that will pass through a sieve having 20 meshes to the square inch. This degree of fineness is the proper one for most drugs being prepared for percolation. We have also Nos. 10, 30, 40, etc., up to No. 120 sieves; the latter produces the drug in a finely powdered form.

**LEVIGATION.**—This is a process somewhat similar to trituration, but is performed with a *slab* and *muller*. These should be made of glass with the surface ground, or any rough-surfaced, nonabsorbent material.

**ELUTRIATION.**—This consists of mixing the powder, obtained by some of the former comminuting processes, with some liquid which is not a solvent of the drug, agitating it, allowing the coarser particles to settle, and decanting, or pouring off, the supernatant liquid containing the finer particles in suspension. These are then allowed to settle, whereupon the liquid may be poured off and the powder dried.

### MECHANICAL PROCESSES.

These consist of those processes by which liquids are separated from solids or by which the active principles and soluble constituents are separated from the inert portion of a drug, or where two or more liquids differing in specific gravity are separated from each other.

**DECANTATION.**—This is a process where solids are allowed to subside in a mixture and the supernatant liquid is poured off. Liquids which will not mix or have different densities may be decanted from each other.

**FILTRATION.**—This is the name applied to the process by which a solid, insoluble substance is separated from the liquid containing it by passing the liquid through a porous medium





called a *filter*. Filters commonly used consist of unsized bibulous paper, cotton, felt, earthenware, stoneware, etc.

PERCOLATION is that process the principle of which is that a permeable body (a ground drug or mixture of drugs, chiefly vegetable), consisting of both soluble and insoluble substances, when subjected, in a conical vessel, called a *percolator*, to the action of a liquid, called a *menstruum*, gives up the soluble portion, which passes from the lower opening of the percolator in solution with the menstruum. The saturated liquid which passes from the percolator is called *the percolate*. The menstruum, in its descent by its own gravity, becomes more and more saturated with the soluble constituents of the contents of the percolator, and eventually escapes from the lower opening of the vessel. The first portion of the percolate is the strongest, and each successive portion becomes weaker as the drug becomes exhausted. The percolate should not drop faster than one or two drops per second. This process is employed in the preparation of the tinctures, fluid extracts, solid extracts, some syrups, and other liquid pharmaceutical preparations.

CLARIFICATION is that process whereby cloudy liquids are made clear by the addition of some coagulable substance. Egg-albumin, ichthyocolla, etc., are the ones generally used. When the coagulating substance is added in solution, it, by coagulating, tends to carry down the substance which makes the liquid cloudy. The mixture may then be filtered or decanted, thus rendering it perfectly clear.

### PHARMACO-CHEMICAL PROCESSES.

Those processes where there is a change, not so much in the substance itself, but from one body or condition to another, as from a solid to a liquid form, etc., are included under this heading.

SOLUTION.—The process in which soluble solid bodies assume the fluid state through the agency of liquids in which they are *soluble*.

**LIXIVIATION.**—This process is the one employed to separate a soluble constituent from an insoluble porous body, by mixing the latter with water, transferring the mixture to a conical vessel, the bottom of which is covered with straw or coarse sand, and, after the *maceration* has continued for a sufficient time to dissolve out the soluble substance, allowing the saturated liquid to run off from the lower opening of the vessel. The liquid that passes from the vessel more or less saturated is called *lye*. This is the first process that kelp (ashes of seaweeds) is put through in the manufacture of iodine.

**CRYSTALLIZATION.**—This is the concentration, by heat, of a liquid, containing a soluble solid body, until the liquid is supersaturated, and then allowing it to cool, when the crystals will form. Stirring while cooling will produce the salt in a fine granular form; this is called *granulation*. *Solution*, *filtration*, and *crystallization* are the three processes whereby the purest salts are obtained.

### PROCESSES REQUIRING THE APPLICATION OF HEAT.

**LIQUEFACTION.**—By liquefaction is meant the melting of substances, by heat, which at ordinary temperature are solid or semisolid; they become liquid before the point of fusion is reached and on cooling return to the same condition as before heating, always assuming the shape of the vessel in which they cool. Resin, wax, lard, etc., are substances that may be liquefied.

**EVAPORATION.**—This is the conversion of a liquid into steam or vapor. Liquids that vaporize at ordinary temperature—*i.e.*, without the aid of heat—are termed *volatile*, *e.g.*, chloroform, ether, etc. Those which do not vaporize, even on the application of heat, are termed *nonvolatile*. When we wish to keep the temperature below the boiling-point of water (212° F.; 100° C.) the *water-bath* is employed. If we desire to have a high temperature transmitted to the vessel we use the *sand-bath*.

**DISTILLATION.**—This is the process employed to vaporize a liquid, in a vessel called a *retort*, or *still*, by heat, conducting







these vapors through a cooled tube called a *condenser*, where they return to the liquid state and pass into a vessel called the *receiver*. This process is employed to purify a liquid, remove impurities from it, or recover a volatile liquid from a mixture or solution. The recondensed liquid is called a *distillate*.

**RECTIFICATION.**—This is the separation of two liquids of different vaporizing points by the process of distillation. Illustrated in the rectifying of alcohol, wines, etc.

**SUBLIMATION.**—This is the distillation of a volatile solid. When the product is in the form of a solid cake (camphor, corrosive sublimate, arsenous acid, etc.), it is called a *sublimate*; when it assumes the form of flakes (sulphur, benzoic acid, etc.), the name *flowers* is given to it.

### PHARMACEUTICAL TERMS.

**MACERATION** is the name used to denote the action of a liquid on a drug at ordinary temperature: *i.e.*, a soaking process.

**DIGESTION** is the name applied to the same process when the heat is raised to 40° C. or above.

**MENSTRUUM** is any liquid used to extract the soluble portion of a drug or to dissolve a soluble solid body.

**EXCIPIENT** is any substance, liquid or solid, used to give the proper consistence to a pill-mass.

**EXSICCATE.**—By this term is meant the removing of *all* moisture, even the water of crystallization, from a crystalline body by the aid of heat. The sand-bath or the naked flame may be employed for this purpose.

**DESICCATE** means to dry a substance or salt, *i.e.*, remove all *excess* of moisture,—but not changing the physical characteristics of the substance. Only a low heat, if any, is employed.

### METRIC SYSTEM OF WEIGHTS AND MEASURES.

The metric system is based on the employment, as a unit, of a uniform, unchangeable standard for all measure, whether it be

that of weight, capacity, length, or area, the subdivisions and multiples of which proceed in regular decimal progression. These subdivisions and multiples are indicated by Latin and Greek prefixes.

The unit employed, or what might be called the starting-point of this system, is the ten one-millionth ( $\frac{1}{10,000,000}$ ) part of one-fourth of the earth's greatest circumference, and is denominated a *metre*. The metre is 39.37 inches in length. This is the *unit* of the measure of *length* and indicated by the letter *m*.

The amount of water, at its greatest density ( $4^{\circ}$  C.;  $39^{\circ}$  F.), that the cube of 0.1 of a metre will hold is taken as the *unit* for the measure of *capacity* and termed a *litre*, which corresponds to 2.1135 pints of apothecaries' measure. The litre is used for measuring large amounts, but a smaller unit was found necessary for small amounts for prescription and scientific uses; so the cube of 0.01 of a metre (a centimetre) was taken and the quantity of water, at its greatest density, that this cube would hold was adopted as the *unit* of the measure of *capacity* for small quantities and given its proper name, viz.: a *cubic centimetre*. For it is the amount of water contained in the cube of 0.01 of a metre, and is indicated by the abbreviation c. c.

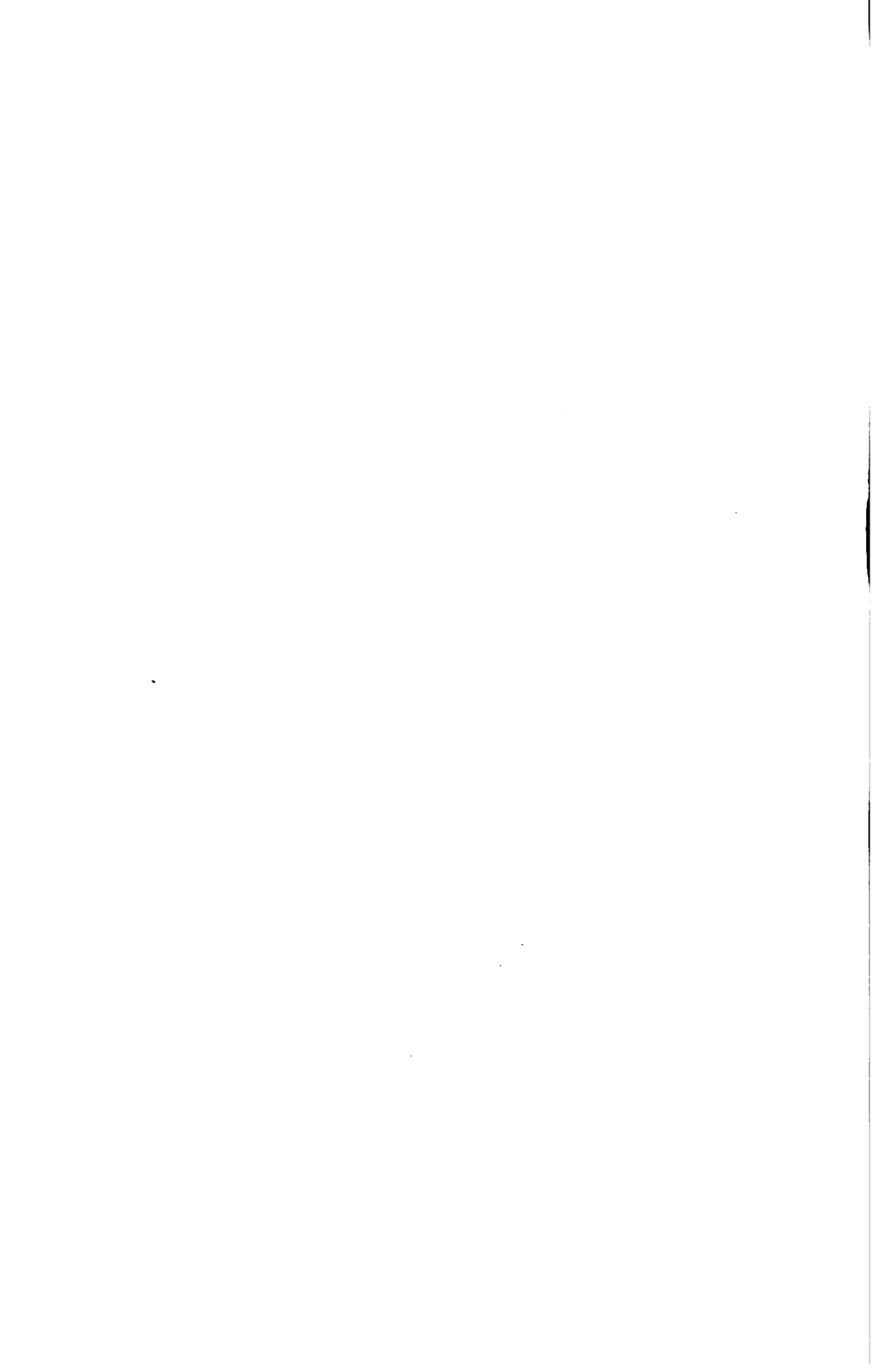
For the *measure of weight* the weight of 1 cubic centimetre of water is used as the unit, or starting-point, and is termed a *gramme*, which corresponds to 15.432 grains (approximately  $15\frac{1}{2}$  grains). For weighing large amounts the weight of 1 litre of water is used as the unit and given its proper name: 1 *kilogramme*, or 1000 grammes. In commerce this name is shortened to *kilo.*, always meaning 1000 grammes. The *gramme* is indicated thus: gm.

The *measure of area*, or surface, interests us but little; suffice it to say that the unit employed is denominated an *are*, which is 100 square metres, or equivalent to 119.6 square yards.

For *solid measure* the term *stere* is used and denotes the cube of 1 metre.

The latter two do not interest us and are of little practical value to the physician.





Now, as regards the multiples of these units, the Greek numerals, *deka*, *hecto*, *kilo*, and *myria* are employed to indicate the different amounts, while the subdivisions are indicated by using the Latin prefixes *deci*, *centi*, and *milli*, as indicated below here, using the gramme as the unit:—

Myriagramme	=	10000.0	or	10000.0	times the unit.
Kilogramme	=	1000.0	or	1000.0	times the unit.
Hectogramme	=	100.0	or	100.0	times the unit.
Dekagramme	=	10.0	or	10.0	times the unit.
Gramme	=	1.0	or	1.0	time the unit.
Decigramme	=	0.1	or	0.1	of the unit.
Centigramme	=	0.01	or	0.01	of the unit.
Milligramme	=	0.001	or	0.001	of the unit.

When specifying amounts we employ the well-known Arabic characters, discarding the Roman numerals.

The arrangement of the prefixes which are used to increase or decrease the unit may be kept in mind by remembering the four letters of the word **GILD**: *i.e.*, Greek prefixes Increase the unit, while the Latin prefixes Decrease it.

The *gravimetric* method is adopted by most countries that use the metric system of weights and measures. By this we mean that all substances, whether liquid or solid, are weighed and indicated in grammes. This form is more accurate than the other, the *volumetric* method, on account of the difference of the density or specific gravity of liquids. In using the latter method we measure liquids and indicate them in cubic centimetres, while solids are weighed and specified in grammes. However, the substances that are likely to cause any trouble in this direction are few, the principal ones being æther (sp. gr., 0.815), spirit of nitrous æther (sp. gr., 0.837), so that 4 parts, by weight, of either of these occupy the same space as 5 parts of water. Glycerin has the relation of weight to volume as 5 is to 4; syrups, 4 to 3; and chloroform, about as 3 to 2. Outside of these there are few preparations which are likely to give us any trouble, and we have adopted the use of the volumetric method except when the other method is indicated. The following table of comparative

weights will probably help those who wish to master the metric system:—

One grain . . . gr. j	=	0.065 gramme or 65 milligrammes =	mg.
One scruple . . . ℥j	=	1.3 grammes or 1 gramme and 3 decigrammes.	gm. dg.
One drachm . . . ℥j	=	3.9 grammes or 3 grammes and 9 decigrammes.	gm. dg.
One ounce . . . ℥j	=	31.2 grammes or 31 grammes and 2 decigrammes.	gm. dg.
One fluidounce . f℥j	=	30.0 cubic centimetres of those liquids having same specific gravity as water.	c. c.
One pint (apoth.) Oj	=	480.0 cubic centimetres.	c. c.

As regards the use of the decimal point, we can either use it or the vertical line in prescription-writing. It is probably better to use the line because the amounts will then be directly below each other, and not so irregular as is generally the case when the decimal point is used.

### CLASSES OF OFFICIAL PHARMACEUTICAL PREPARATIONS.

It is necessary to be familiar with the different classes of preparations and the general methods employed in their manufacture.

#### Aceta.

#### MEDICATED VINEGARS.

The medicated vinegars are solutions of vegetable principles in diluted acetic acid. Formerly distilled vinegar was used as the menstruum, but on account of the adulteration of and impurities in vinegar, not to speak of its deficiency in acetic acid, its use was discarded. Vinegars are prepared by exhausting the drug with the menstruum, by the process of maceration, on account of the gummy nature of the drugs used. There are two official vinegars.

#### OFFICIAL VINEGARS.

Acetum Opii.

Acetum Scillæ.







**Acida.****ACIDS.**

Acids are compounds capable of uniting in definite proportions with earths, alkalies, and metallic oxides, producing compounds, termed *salts*, which are neutral, and do not partake of the nature of either the acid or the base. They are recognized by their sour taste and generally a pungent odor, as well as their action on vegetable blues, changing them to red. Acids are prepared by the manufacturing chemists by different processes which interest us only in *materia medica*. Some are of mineral origin, some of vegetable, while a few are obtained from the animal kingdom. Thirty-two acids are now official in the U. S. P.

**OFFICIAL ACIDS.**

Acidum Aceticum.	Acidum Lacticum.
Acidum Aceticum Dilutum.	Acidum Nitricum.
Acidum Aceticum Glaciale.	Acidum Nitricum Dilutum.
Acidum Arsenosum.	Acidum Nitrohydrochloricum.
Acidum Benzoicum.	Acidum Nitrohydrochloricum Dilutum.
Acidum Boricum.	
Acidum Carbolicum.	Acidum Oleicum.
Acidum Carbolicum Crudum.	Acidum Phosphoricum.
Acidum Chromicum.	Acidum Phosphoricum Dilutum.
Acidum Citricum.	Acidum Salicylicum.
Acidum Gallicum.	Acidum Stearicum.
Acidum Hydrobromicum Dilutum.	Acidum Sulphuricum.
Acidum Hydrochloricum.	Acidum Sulphuricum Aromaticum.
Acidum Hydrochloricum Dilutum.	Acidum Sulphuricum Dilutum.
Acidum Hydrocyanicum Dilutum.	Acidum Sulphurosum.
Acidum Hypophosphoricum Dilutum.	Acidum Tannicum.
	Acidum Tartaricum.

**Aquæ.****MEDICATED WATERS.**

Official waters are solutions of volatile substances in aqueous menstrua. They are, with a few exceptions, prepared from

the volatile oils. There are three methods employed in the manufacture of medicated waters, viz.:—

1. *Dilution*.—When a stronger water is reduced in strength by the addition of distilled water; example: Aqua Rosæ.

2. *Impregnation*, seen in the manufacture of Aqua Acidi Carbonici (carbonated water). In this case distilled water is saturated with carbonic-acid gas.

3. *Intervention*.—This is shown in the preparation of most of the waters prepared from the volatile oils and from camphor. The medicinal agent is first triturated with precipitated phosphate of calcium and the water gradually added, after which the mixture is filtered and the insoluble phosphate is removed. The U. S. P. recognizes nineteen official waters.

#### OFFICIAL WATERS.

Aqua.	Aqua Cinnamomi.
Aqua Ammoniaë.	Aqua Creosoti.
Aqua Ammoniaë Fortior.	Aqua Destillata.
Aqua Amygdalæ Amaræ.	Aqua Fœniculi.
Aqua Anisi.	Aqua Hydrogenii Dioxidi.
Aqua Aurantii Florum.	Aqua Menthæ Piperitæ.
Aqua Aurantii Florum Fortior.	Aqua Menthæ Viridis.
Aqua Camphoræ.	Aqua Rosæ.
Aqua Chlorig.	Aqua Rosæ Fortior.
Aqua Chloroformi.	

#### Cerata.

#### CERATES.

Cerates are unctuous or greasy preparations of such consistence that they may be, easily, spread upon adhesive plaster, muslin, etc., or directly upon the skin, yet not soft enough to melt at the temperature of the body. This class of preparations is prepared by liquefying the greasy base, adding the medicinal agent, if any is used, and stirring the mixture until it cools. This latter precaution is necessary on account of the difference of the melting-points of the ingredients used. Cerates are harder than ointments, but softer than plasters. It is best to use the





water-bath in the preparation of cerates. There are six official cerates in the U. S. P.

**OFFICIAL CERATES.**

Ceratum.	Ceratum Cetacei.
Ceratum Camphoræ.	Ceratum Plumbi Subacetatis.
Ceratum Cantharidis.	Ceratum Resinæ.

**Collodia.****COLLODIONS.**

Collodions are solutions of pyroxyton (gun-cotton), in alcohol and ether, with or without the addition of other substances. Plain collodium (U. S. P.) is used as a protective dressing, while the others have additional therapeutic value. Four official collodions were adopted in the last revision of the U. S. P. (1890).

**OFFICIAL COLLODIONS.**

Collodium.	Collodium Flexile.
Collodium Cantharidatum.	Collodium Stypticum.

**Confectiones.****CONFECTIONS, ELECTUARIES, AND CONSERVES.**

In this class are included all those preparations which have the consistence of a soft solid and in which the therapeutic agent or agents are incorporated with molasses or some other pleasant-tasting saccharine substance, the object being their easy administration. This is a convenient form of administering medicines to patients suffering with diseases of the respiratory tract, especially when deglutition is difficult. There are two official confections, but many are dispensed from extemporized formulæ to suit the case.

**OFFICIAL CONFECTIONS.**

Confectio Rosæ.	Confectio Sennæ.
-----------------	------------------

**Decocta.**

## DECOCTIONS.

Decoctions are liquid preparations made by *boiling* vegetable substances with water. They are generally weak and always unstable preparations, and will not keep more than from twenty to twenty-four hours in summer and from thirty-six to forty-eight hours in winter. On account of the tannic acid usually found in vegetable drugs, decoctions should be made in porcelain or porcelain-lined vessels. Those vegetable drugs whose active ingredients are volatile cannot be subjected to boiling; other drugs, which contain inactive or nauseous principles, which, though insoluble in cold water, are soluble in boiling liquids, should not be made into a decoction. Two decoctions are official in the U. S. P.

## OFFICIAL DECOCTIONS.

Decoctum Cetrariæ.

Decoctum Sarsaparillæ Compositum.

**Elixiria.**

## ELIXIRS.

Elixirs are hydro-alcoholic preparations of drugs, which are rendered pleasant to the taste and smell by the addition of aromatics and sugar. Elixirs are weaker than tinctures, but have decided therapeutic actions. The latest edition of the pharmacopœia contains two official elixirs.

## OFFICIAL ELIXIRS.

Elixir Aromaticum.

Elixir Phosphori.

**Emplastra.**

## PLASTERS.

Plasters are solid mixtures of medicinal substances intended for external application, and are of such consistence as to render the aid of heat necessary in spreading them. They







will adhere to the skin when applied thereto. They are of little or no use in veterinary medicine on account of the hairy coats of animals. There are thirteen official plasters.

#### OFFICIAL PLASTERS.

Emplastrum Ammoniaci cum Hy-	Emplastrum Ichthyocollæ.
drargyro.	Emplastrum Opii.
Emplastrum Arnicæ.	Emplastrum Picis Burgundicæ.
Emplastrum Belladonnæ.	Emplastrum Picis Cantharidatum.
Emplastrum Capsici.	Emplastrum Plumbi.
Emplastrum Ferri.	Emplastrum Resinæ.
Emplastrum Hydragryi.	Emplastrum Saponis.

#### Emulsiones.

##### EMULSIONS.

Emulsions are mixtures in which an insoluble drug is finely subdivided and held in suspension in aqueous menstruum by means of gum or sugar. Emulsions properly made will not separate on standing. They are prepared by triturating the medicinal agent with the gum or sugar and slowly adding the water; this should result in a homogeneous mixture of a milk-white color. The official emulsions, of which there are four, were formerly classed under the mixtures.

#### OFFICIAL EMULSIONS.

Emulsum Ammoniaci.	Emulsum Asafoetidæ.
Emulsum Amygdalæ.	Emulsum Chloroformi.

#### Extracta.

##### EXTRACTS (SOLID EXTRACTS).

Extracts are solid or semisolid preparations obtained by evaporating the solutions of vegetable principles; in some cases the product is reduced to a fine powder. These are the most concentrated of all vegetable pharmaceutical preparations. A perfect extract should have all of the active principles of the

drug with as little of the inert portion as possible. The menstrua used vary from pure alcohol to various strengths of hydro-alcoholic and even to aqueous, the former when the drug contains gum and starch, which are not desirable in the finished product. The general method of preparing an extract is first to percolate the drug with the proper menstruum, as given in the U. S. P., until exhausted or until the amount of percolate directed by the pharmacopœia is obtained; then evaporate the product by means of a water-bath until it assumes a pilular consistence. There is no definite relation between the amounts of extract which can be obtained from the different drugs, these amounts varying from 2 per cent. in chamomile to 95 per cent. in aloes. Nor do the amounts of the finished products obtained from the different drugs have a regular percentage with the amounts of the drugs used as is the case with the fluid extracts. In some cases extracts are prepared by evaporating the juice obtained from the fresh plant. Extracts prepared by using water as the menstruum are called *aqueous extracts*; those obtained by the use of alcohol or diluted alcohol are termed *alcoholic extracts*. It is necessary in some cases to add to the menstruum substances which render the active principle of the drug more soluble; this is the case in the extracts of colchicum, conium, nux vomica, and sanguinaria, where acetic acid is added to the menstruum. In glycyrrhiza and senega ammonia is added, and in many glycerin is mixed with the menstruum before the drug is subjected to its action. There are thirty-three extracts official in the U. S. P., but a solid extract may be obtained from any vegetable drug by using the general method employed in the manufacture of the official ones.

#### OFFICIAL EXTRACTS.

Extractum Aconiti.	Extractum Cinchonæ.
Extractum Aloes.	Extractum Colchici Radicis.
Extractum Arnicæ Radicis.	Extractum Colocyntidis.
Extractum Belladonnæ Foliorum	Extractum Colocyntidis Com-
Alcoholicum.	positum.
Extractum Cannabis Indicæ.	Extractum Conii.
Extractum Cimicifugæ.	Extractum Digitalis.





Extractum Ergotæ.	Extractum Leptandræ.
Extractum Euonymi.	Extractum Nucis Vomice.
Extractum Gentianæ.	Extractum Opii.
Extractum Glycyrrhizæ.	Extractum Physostigmatis.
Extractum Glycyrrhizæ Purum.	Extractum Podophylli.
Extractum Hæmatoxyli.	Extractum Quassie.
Extractum Hyoscyami.	Extractum Rhei.
Extractum Iridis.	Extractum Stramonii Seminis.
Extractum Jalapæ.	Extractum Taraxaci.
Extractum Juglans.	Extractum Uvæ Ursi.
Extractum Kramariæ.	

**Extracta Fluida.****FLUID EXTRACTS.**

Fluid extracts are liquid preparations of vegetable drugs of such strength that each cubic centimetre of the finished product represents the strength and activity of 1 gramme of the drug used. These might be called concentrated tinctures, but they differ from tinctures, besides being stronger, in the fact that the finished products all bear the same definite relation to the amount of the drug used. They are valuable preparations to the prescriber, inasmuch as he can always tell how much of the crude drug is represented in a specified amount of the fluid extract. In the preparation of fluid extracts the first part of the process is the exhaustion of the drug by percolation, reserving the first portion of the percolate, representing from 80 to 90 per cent. of the finished product. The second part of the percolate is evaporated on a water-bath to the consistence of a soft solid, and this is dissolved in the first percolate, and menstruum, such as was originally used, is added to make the finished product such an amount that for each gramme of the drug used there will be 1 cubic centimetre of fluid extract. Glycerin is used in the menstruum of almost all fluid extracts on account of its preservative influence as well as for the solvent power it has on some substances that formerly precipitated in fluid extracts made according to the old formulæ. In preparing fluid extracts as well as solid extracts it is always advisable, after the

drug has been moistened and packed in the percolator, to pour on menstruum until the cotton placed in the bottom of the vessel, under the drug, has become saturated with percolate, then to cork up the lower opening of the percolator tightly, and, covering the top, set it aside for four days to macerate, after which time the drug may be more easily exhausted.

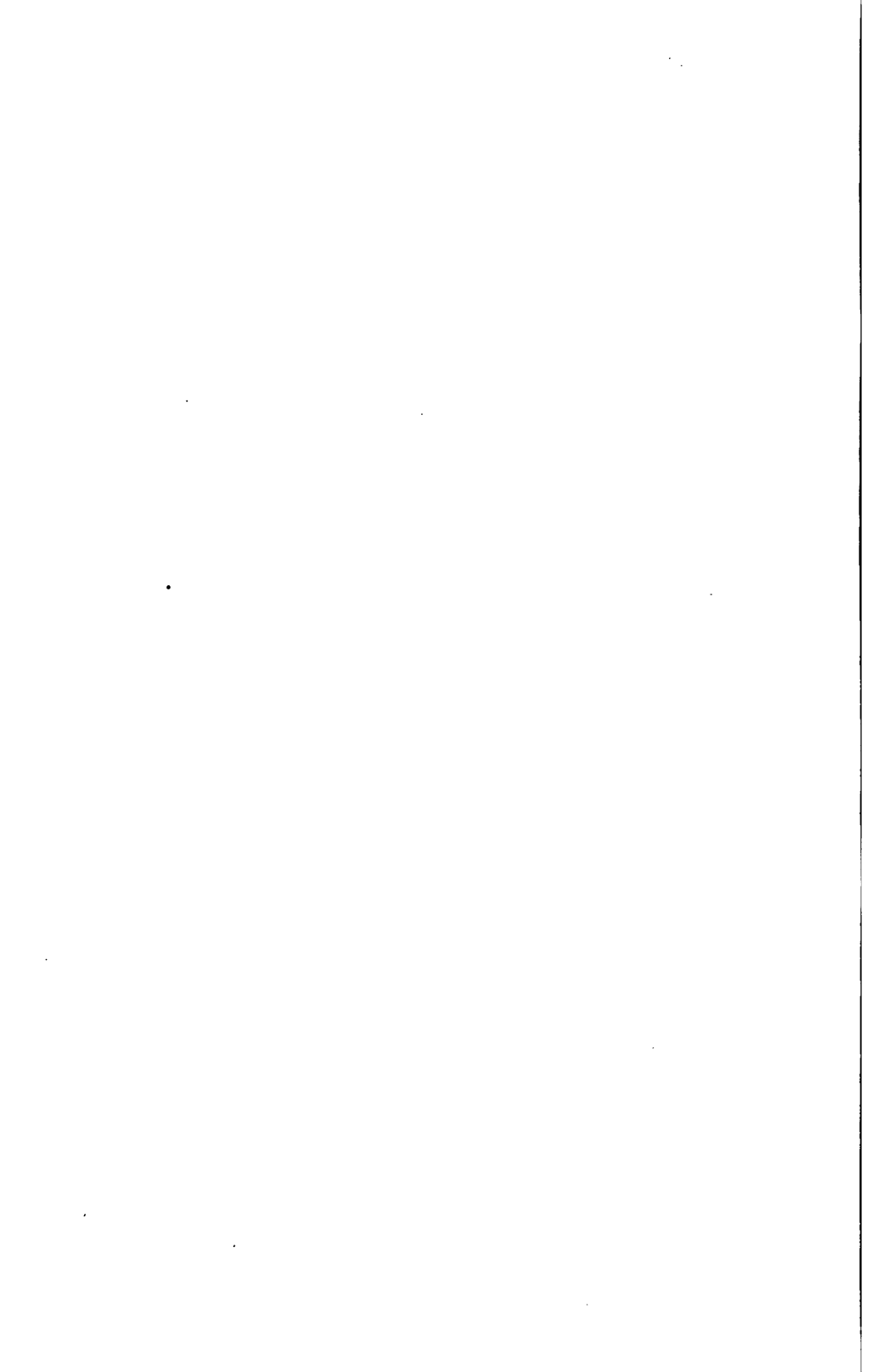
The menstrua used in fluid extracts are practically the same as those used for solid extracts,—alcoholic or hydro-alcoholic,—but water is never used alone as the exhausting medium. A fluid extract may be prepared from any vegetable drug by following the usual formula given in the U. S. P. There are 88 different fluid extracts that are recognized as official.

#### OFFICIAL FLUID EXTRACTS.

Extractum Aconiti Fluidum.	Extractum Conii Fluidum.
Extractum Apocyni Fluidum.	Extractum Convallariæ Fluidum.
Extractum Arnicæ Radicis Fluidum.	Extractum Cubebæ Fluidum.
Extractum Aromaticum Fluidum.	Extractum Cusso Fluidum.
Extractum Asclepiadis Fluidum.	Extractum Cypripedii Fluidum.
Extractum Aspidospermatis Fluidum.	Extractum Digitalis Fluidum.
Extractum Aurantii Amari Fluidum.	Extractum Dulcamaræ Fluidum.
Extractum Belladonnæ Radicis Fluidum.	Extractum Ergotæ Fluidum.
Extractum Buchu Fluidum.	Extractum Eriodictyi Fluidum.
Extractum Calami Fluidum.	Extractum Eucalypti Fluidum.
Extractum Calumbæ Fluidum.	Extractum Eupatorii Fluidum.
Extractum Cannabis Indicæ Fluidum.	Extractum Frangulæ Fluidum.
Extractum Capsici Fluidum.	Extractum Gelsemii Fluidum.
Extractum Castanæ Fluidum.	Extractum Gentianæ Fluidum.
Extractum Chimaphilæ Fluidum.	Extractum Geranii Fluidum.
Extractum Chiratæ Fluidum.	Extractum Glycyrrhizæ Fluidum.
Extractum Cimicifugæ Fluidum.	Extractum Gossypii Radicis Fluidum.
Extractum Cinchonæ Fluidum.	Extractum Grindeliæ Fluidum.
Extractum Cocæ Fluidum.	Extractum Guaranæ Fluidum.
Extractum Colchici Radicis Fluidum.	Extractum Hamamelidis Fluidum.
Extractum Colchici Seminis Fluidum.	Extractum Hydrastis Fluidum.
	Extractum Hyoseyami Fluidum.
	Extractum Ipecacuanhæ Fluidum.
	Extractum Iridis Fluidum.
	Extractum Kramariæ Fluidum.
	Extractum Lappæ Fluidum.
	Extractum Leptandræ Fluidum.







Extractum Lobeliæ Fluidum.	Extractum Sarsaparillæ Fluidum.
Extractum Lupulini Fluidum.	Extractum Sarsaparillæ Fluidum Compositum.
Extractum Matico Fluidum.	Extractum Scillæ Fluidum.
Extractum Menispermii Fluidum.	Extractum Scoparii Fluidum.
Extractum Mezerei Fluidum.	Extractum Scutellarie Fluidum.
Extractum Nucis Vomice Fluidum.	Extractum Senegæ Fluidum.
Extractum Pareiræ Fluidum.	Extractum Sennæ Fluidum.
Extractum Phytolacæ Radicis Fluidum.	Extractum Serpentariæ Fluidum.
Extractum Pilocarpi Fluidum.	Extractum Spigeliæ Fluidum.
Extractum Podophylli Fluidum.	Extractum Stillingiæ Fluidum.
Extractum Pruni Virginianæ Fluidum.	Extractum Stramonii Seminis Fluidum.
Extractum Quassie Fluidum.	Extractum Taraxaci Fluidum.
Extractum Rhamni Purshianæ Fluidum.	Extractum Tritici Fluidum.
Extractum Rhei Fluidum.	Extractum Uvæ Ursi Fluidum.
Extractum Rhois Glabræ Fluidum.	Extractum Valerianæ Fluidum.
Extractum Rosæ Fluidum.	Extractum Veratri Viridis Fluidum.
Extractum Rubi Fluidum.	Extractum Viburni Opuli Fluidum.
Extractum Rumicis Fluidum.	Extractum Viburni Prunifolii Fluidum.
Extractum Sabinæ Fluidum.	Extractum Xanthoxyli Fluidum.
Extractum Sanguinarie Fluidum.	Extractum Zingiberis Fluidum.

### Glycerita.

#### GLYCERITES.

Glycerites are solutions of medicinal substances in glycerin. Glycerin as a solvent and vehicle has valuable properties, and for these reasons the glycerites have taken their place as recognized official preparations. When dissolved in glycerin, carbolic acid becomes freely soluble in water, while in its natural state it is only sparingly so. Glycerin is itself emollient; the taste is bland and not unpleasant; and these properties, together with the property it has of rendering many insoluble substances soluble in water make it a valuable diluent. Glycerites are prepared by triturating the medicinal substance with the base until dissolved and in some cases facilitating the solution by

- \* means of water-bath heat. Six glycerites were placed in the last revision of the U. S. P.

## OFFICIAL GLYCERITES.

Glyceritum Acidi Carbolici.	Glyceritum Boroglycerini.
Glyceritum Acidi Tannici.	Glyceritum Hydrastis.
Glyceritum Amyli.	Glyceritum Vitelli.

**Infusa.**

## INFUSIONS.

Infusions differ from decoctions only in the fact that they are not subjected to boiling. Like the latter, they are unstable and are aqueous solutions of vegetable principles, obtained by treating the substance with hot or cold water, *without boiling*. There are four official infusions in the U. S. D., edition of 1890.

## OFFICIAL INFUSIONS.

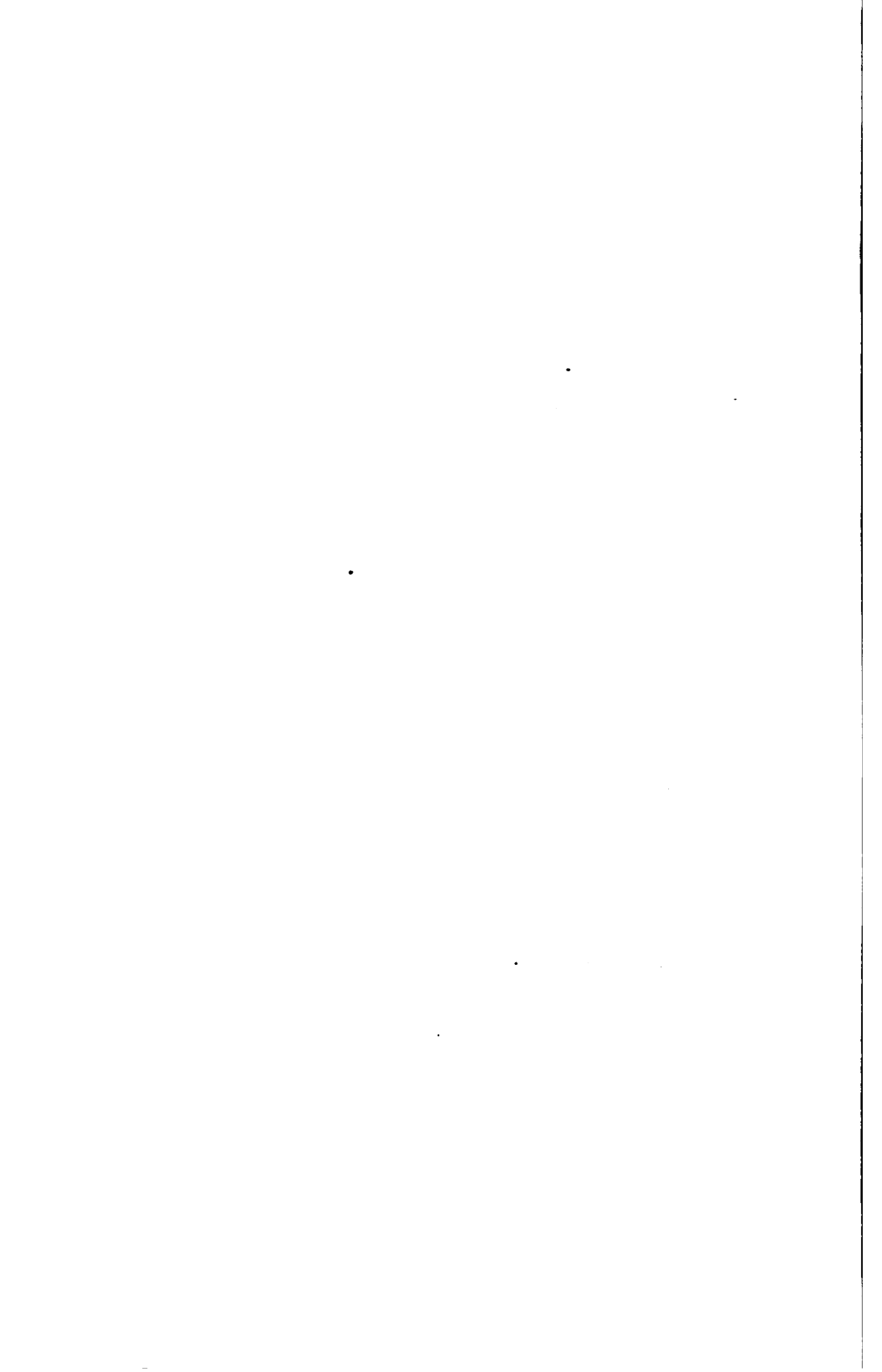
Infusum Cinchonæ.	Infusum Pruni Virginianæ.
Infusum Digitalis.	Infusum Senna Compositum.

**Linimenta.**

## LINIMENTS.

Liniments are solutions or mixtures of various medicinal substances in oily or alcoholic menstrua, intended for local application. Liniments should be applied with gentle hand, rubbing to further their action on the tissues. There are three different vehicles used in the official liniments, viz.: fixed oil, volatile oil, and alcohol or some alcoholic solution. The pharmacopœia recognizes nine official liniments, but in practice they are more often prepared from extemporized formulæ to suit the needs of the patient. In all cases Liniment Saponis (soap lini-





ment) may be used as the vehicle for other stronger drugs intended for local application.

## OFFICIAL LINIMENTS.

Linimentum Ammoniaë.  
 Linimentum Belladonnæ.  
 Linimentum Calcis.  
 Linimentum Camphoræ.  
 Linimentum Chloroformi.

Linimentum Saponis.  
 Linimentum Saponis Mollis.  
 Linimentum Sinapis Compositum.  
 Linimentum Terebinthinæ.

## Liquores.

## SOLUTIONS.

Liquors are defined as aqueous solutions of nonvolatile substances. These may be classed among the most valuable of all the pharmaceutical preparations, as they are almost all made from drugs that have pronounced therapeutic actions, and in many cases are poisonous; hence can be given in small doses. The majority of them are prepared by solution. Twenty-four solutions are recognized as official.

## OFFICIAL LIQUORES.

Liquor Acidi Arsenosi.  
 Liquor Ammonii Acetatis.  
 Liquor Arseni et Hydrargyri Iodidi.  
 Liquor Calcis.  
 Liquor Ferri Acetatis.  
 Liquor Ferri Chloridi.  
 Liquor Ferri Citratis.  
 Liquor Ferri et Ammonii Acetatis.  
 Liquor Ferri Nitratis.  
 Liquor Ferri Subsulphatis.  
 Liquor Ferri Tersulphatis.  
 Liquor Hydrargyri Nitratis.

Liquor Iodi Compositus.  
 Liquor Magnesii Citratis.  
 Liquor Plumbi Subacetatis.  
 Liquor Plumbi Subacetatis Dilutus.  
 Liquor Potassæ.  
 Liquor Potassii Arsenitis.  
 Liquor Potassii Citratis.  
 Liquor Sodæ.  
 Liquor Sodæ Chloratæ.  
 Liquor Sodii Arsenatis.  
 Liquor Sodii Silicatis.  
 Liquor Zinci Chloridi.

## Misturæ.

## MIXTURES.

These are preparations in which insoluble medicinal agents, either liquid or solid, are held in suspension in aqueous fluid

through the agency of acacia or some other mucilaginous substance. Emulsions might be and formerly were placed under the mixtures. The objects of these preparations are to conceal the taste of some constituent, obviate its nauseating effect, and to facilitate administration. Mixtures are prepared by triturating the medicinal agents with the viscid substance thoroughly before the water is added. There are but four official mixtures, this class of preparations being generally prepared from extemporized prescriptions.

#### OFFICIAL MIXTURES.

Mistura Cretæ.

Mistura Glycyrrhizæ Composita.

Mistura Ferri Composita.

Mistura Rhei et Sodæ.

#### Mucilagines.

##### MUCILAGES.

Mucilages are viscid aqueous solutions of gum. They are prepared by dissolving the gummy substance in water or by extracting the gum from a substance by macerating it in water. Mucilages are used for excipients for pill-masses, for holding insoluble substances in suspension in mixtures, etc. Directions for making four official mucilages are given in the U. S. P.

#### OFFICIAL MUCILAGES.

Mucilago Acaciæ.

Mucilago Tragacanthæ.

Mucilago Sassafras Medullæ.

Mucilago Ulmi.

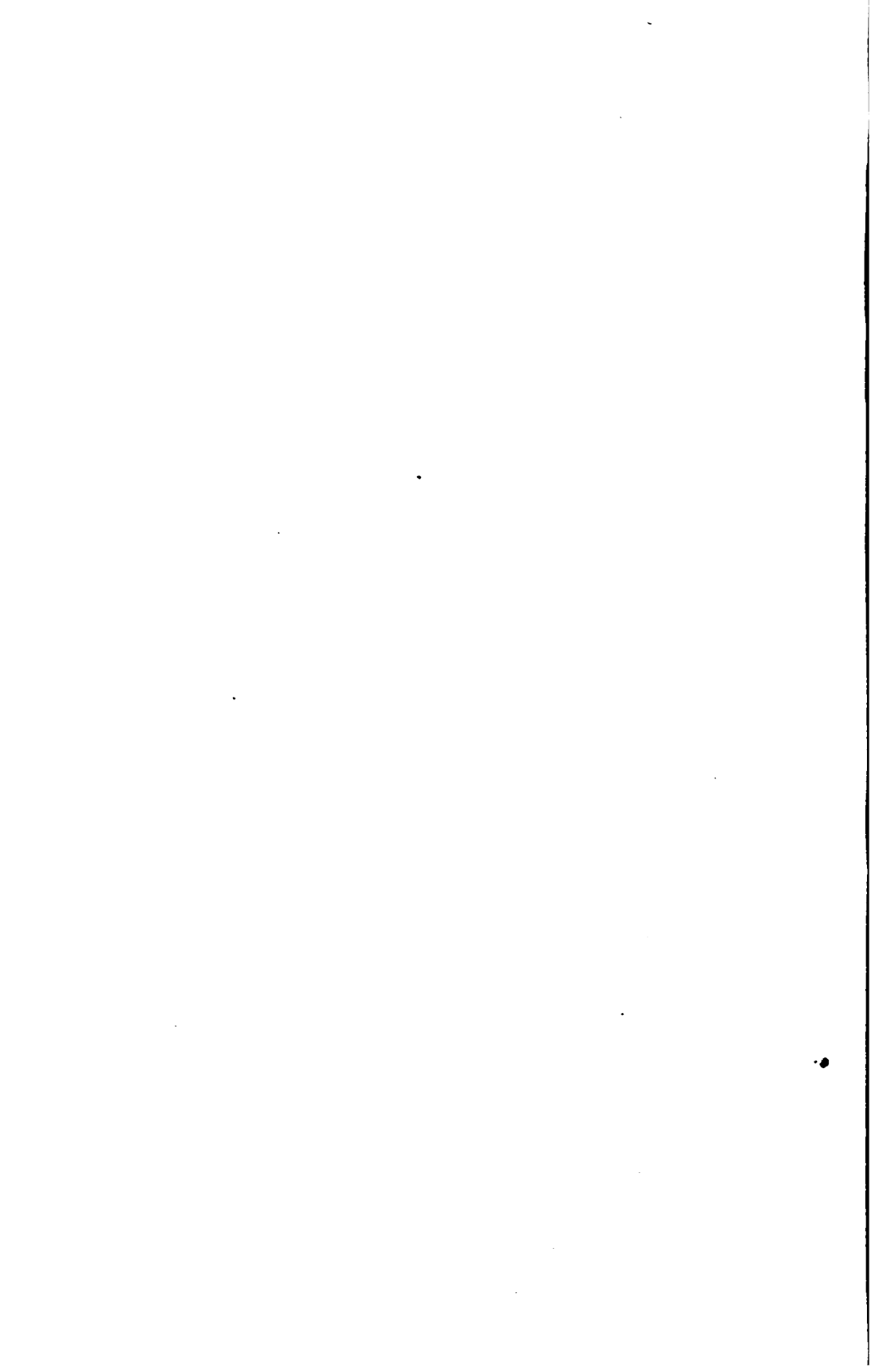
#### Oleata.

##### OLEATES.

Oleates are solutions of medicinal substances in oleic acid. They are prepared by triturating the medicinal agent with oleic acid and facilitating the solution by heat. These preparations are intended for external application and should be applied by







inunction until the skin absorbs them. There are recognized as official:—

OFFICIAL OLEATES.

Oleatum Hydrargyri.      Oleatum Veratrinae.      Oleatum Zinci.

Oleoresinae.

OLEORESINS.

Oleoresins are preparations composed of different proportions of oil and resin and are extracted from vegetable drugs containing them by means of ether. They are obtained by the process of percolation, and are intended for both internal and local use. They should be given in the form of a pill or capsule. There are six oleoresins official.

OFFICIAL OLEORESINS.

Oleoresina Aspidii.	Oleoresina Lupulini.
Oleoresina Capsici.	Oleoresina Piperis.
Oleoresina Cubebæ.	Oleoresina Zingiberis.

Pilulæ.

PILLS.

Pills are globular or ovoid masses of medicines, of a convenient size and shape for swallowing. Boluses, used in veterinary practice, for horses, cattle, and other large animals, conform in all ways, except shape, to pills. Drugs, that are nauseating, irritant to the mucous membrane, unpleasant to the taste or smell, or are insoluble are given in this form. Drugs that when mixed will deliquesce or explode cannot be made into pills. Some drugs may be made into pills without the aid of any excipient; others require the use of some agglutinating substance, as acacia, syrup, honey, glycerin, etc., to make the mass. A pill-mass should be tough, pliable, and tenacious. In preparing pills from substances that can be powdered, the ingredients should be

in as fine a state as possible, and well mixed; then by carefully adding a suitable excipient, which may be pure water, a mass may be made and then divided into the required number of parts and rolled into the proper shape. When dispensed the box containing them should contain some dry powder to prevent them from adhering together. The pharmacopœia gives formulæ for fifteen official pills, but many are dispensed from extemporized formulæ. Pills or boluses may be coated with gelatin by dipping each pill or bolus, held on the point of a pin, into a strong solution of gelatin kept hot in a water-bath, withdrawing it with a rotary motion, and allowing it to dry in the air, the pin being stuck in sand; when the coating is thoroughly dry, heat the pin in a flame and withdraw it, the heat causing the gelatin to melt and close up the opening. Capsules made of gelatin are used to cover pills and boluses, the mass being made cylindrical and placed in the capsule, or the capsule being filled with the dry powder, it then being closed with a cap. Pills protected in this manner do not dry out so quickly and are more agreeable to the taste.

#### OFFICIAL PILLS.

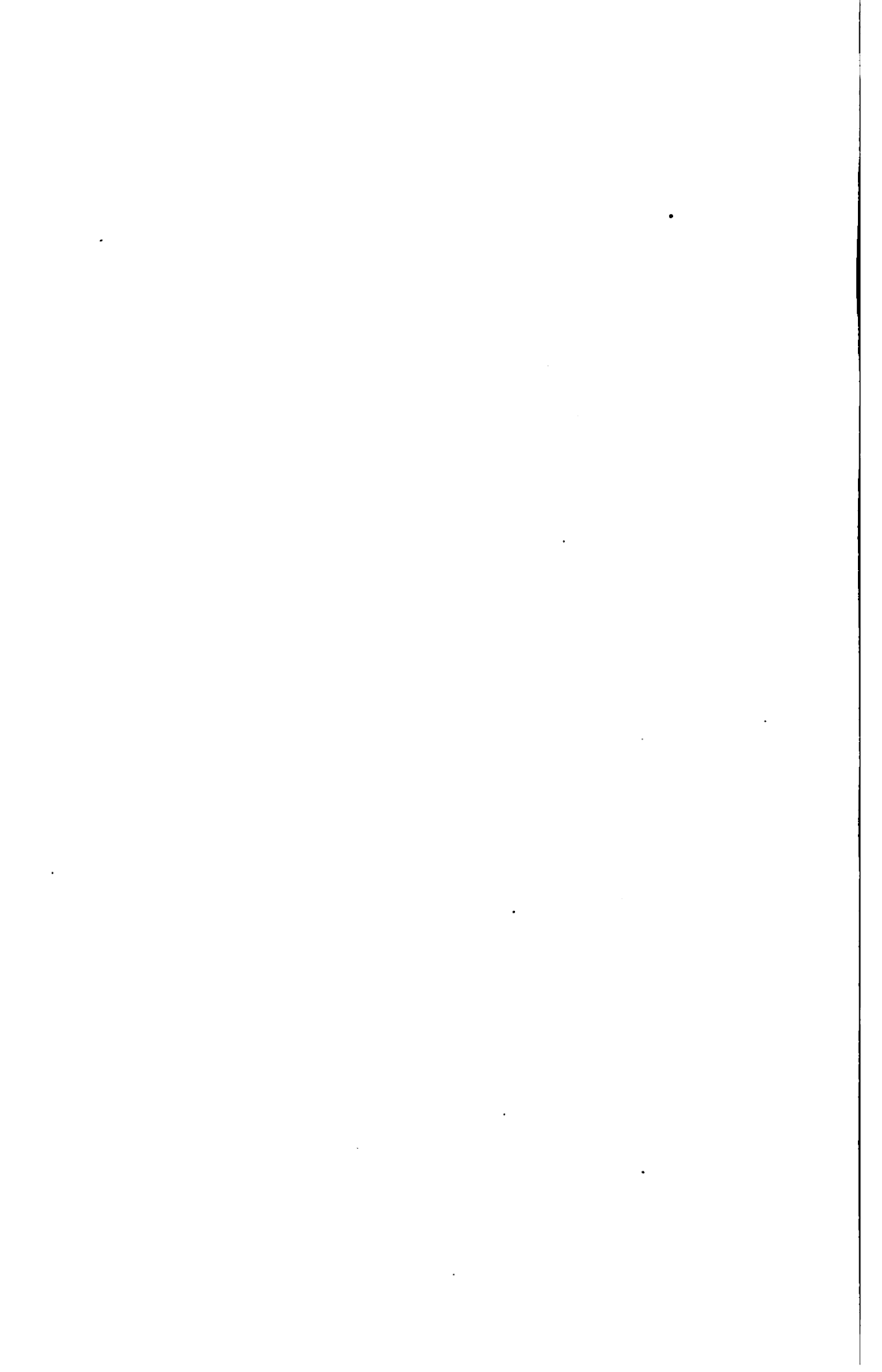
<i>Pilulæ Aloes.</i>	<i>Pilulæ Catharticæ Vegetabiles.</i>
<i>Pilulæ Aloes et Asafœtidæ.</i>	<i>Pilulæ ferri Carbonatis.</i>
<i>Pilulæ Aloes et Ferri.</i>	<i>Pilulæ Ferri Iodidi.</i>
<i>Pilulæ Aloes et Mastiches.</i>	<i>Pilulæ Opii.</i>
<i>Pilulæ Aloes et Myrrhæ.</i>	<i>Pilulæ Phosphori.</i>
<i>Pilulæ Antimonii Compositæ.</i>	<i>Pilulæ Rhei.</i>
<i>Pilulæ Asafœtidæ.</i>	<i>Pilulæ Rhei Compositæ.</i>
<i>Pilulæ Catharticæ Compositæ.</i>	

#### Pulveres.

#### POWDERS.

Powders are finely comminuted drugs or mixtures of drugs for both external and internal administration. Substances which are not very disagreeable to the taste, nonirritant substances, and those which will not readily deliquesce are those which may be dispensed in the powdered form. It is a conven-





ient form of medication for the veterinarian, as powders can be readily mixed in the animals' feed, and in this way easily administered. Powders, like pills, are *simple*, when composed of but one ingredient, and *compound* when composed of two or more. Before mixing powders each ingredient should be finely reduced. If a powder is hygroscopic and likely to become moist it should be dispensed in waxed paper, this being wrapped in ordinary powder-paper for further protection. If an impalpable powder is desired, the whole quantity should be passed through a fine sieve and the coarser particles returned to the mortar for further reduction, and again sifted. In this way it may be reduced to a uniform fineness. There are nine official powders in the pharmacopœia, and all are compound.

## OFFICIAL POWDERS.

Pulvis Antimonialis.	Pulvis Ipecacuanhæ et Opii.
Pulvis Aromaticus.	Pulvis Jalapæ Compositus.
Pulvis Cretæ Compositus.	Pulvis Morphine Compositus.
Pulvis Effervescens Compositus.	Pulvis Rhei Compositus.
Pulvis Glycyrrhizæ Compositum.	

**Spiritus.**

## SPIRITS.

Spirits are solutions of volatile substances in alcohol. Some spirits are distilled, and some are prepared by dissolving the medicinal agent in alcohol or alcohol and water. The official spirits are all carminative and stimulant, and also have some other special therapeutic action. They are used principally in prescriptions as adjuvants and correctives. The official ones, twenty-five in number, are all of value in any line of medicine.

## OFFICIAL SPIRITS.

Spiritus Ætheris.	Spiritus Amygdalæ Amaræ.
Spiritus Ætheris Compositus.	Spiritus Anisi.
Spiritus Ætheris Nitrosi.	Spiritus Aurantii.
Spiritus Ammonię.	Spiritus Aurantii Compositus.
Spiritus Ammonię Aromaticus.	Spiritus Camphoræ.

Spiritus Chloroformi.  
Spiritus Cinnamomi.  
Spiritus Frumenti.  
Spiritus Gaultheriæ.  
Spiritus Glonoini.  
Spiritus Juniperi.  
Spiritus Juniperi Compositus.  
Spiritus Lavandulæ.

Spiritus Limonis.  
Spiritus Menthæ Piperitæ.  
Spiritus Menthæ Viridis.  
Spiritus Myrciæ.  
Spiritus Myristicæ.  
Spiritus Phosphori.  
Spiritus Vini Gallici.

### Suppositoria.

#### SUPPOSITORIES.

Suppositories are cone-shaped, solid bodies intended to be inserted into the rectum, with the view either (1) of evacuating that organ, (2) of having some action on adjacent tissues, or (3) of being absorbed and producing some therapeutic action on the general system. When the first result is desired some drug which causes a slight irritation to the rectal mucous membrane is employed. When some physiological action on surrounding parts or a constitutional effect is desired, then the medicinal agent should be thoroughly incorporated with the vehicle and slowly introduced into the rectum, after that organ has been emptied of its fecal contents. Cacao-butter is usually employed as the vehicle with which to make up these bodies, as this substance melts at the body-temperature and allows the medicinal agent to be absorbed by the mucous membrane. Gelatin and soap are sometimes used as the base of suppositories, but are inferior to pure cacao-butter. Suppositories are prepared by liquefying the cacao-butter, incorporating the medicinal portion, and pouring the mixture into suitable molds, kept cool by being immersed in ice-water. This class of preparations, like many others, are largely dispensed from extemporaneous prescriptions, and probably for this reason there is but one official in the present edition of the U. S. P.

#### OFFICIAL SUPPOSITORY.

Suppositoria Glycerini.







**Syrupi.****SYRUPS.**

Syrups are concentrated solutions of sugar in water with or without medicinal impregnation. Some have decided physiological action, while others are used for their corrective action alone. *Syrupus* is but a concentrated solution of sugar in water and is used as a diluent or corrective; all the other official syrups, thirty-two in number, contain some medicinal agents, and are termed *medicated syrups*. The latter are generally prepared by mixing the medicinal portion with syrup, and in some cases evaporating the alcohol by heat. Hot syrup should have a specific gravity of 1.261, and 1.319 when cold. At this specific gravity the sugar is less likely to crystallize out on standing. The specific gravity, however, that the pharmacopœia directs is about 1.317. Syrups are made by the hot process,—that of boiling the sugar with the vegetable infusion, etc.,—or by the cold process,—that of percolating the sugar with the liquid containing the medicinal agent in solution, all the sugar being dissolved by repeatedly pouring the percolate on the sugar left in the percolator. Syrups are somewhat unstable, especially if they are too weak in sugar. If fermentation occurs and a mold appears it may be remedied by being heated to the boiling-point, skimmed, and concentrated slightly. When this is done, further change is not likely to occur.

**OFFICIAL SYRUPS.**

Syrupus.	Syrupus Calcis.
Syrupus Acaciæ.	Syrupus Ferri Iodidi.
Syrupus Acidi Citrici.	Syrupus Ferri, Quininae, et Strychninae Phosphatum.
Syrupus Acidi Hydriodici.	Syrupus Hypophosphitum.
Syrupus Allii.	Syrupus Hypophosphitum cum Ferro.
Syrupus Althææ.	Syrupus Ipecacuanhæ.
Syrupus Amygdalæ.	Syrupus Kramerizæ.
Syrupus Aurantii.	Syrupus Lactucarii.
Syrupus Aurantii Florum.	
Syrupus Calcii Lactophosphatis.	

Syrupus Picis Liquidæ.  
Syrupus Pruni Virginianæ.  
Syrupus Rhei.  
Syrupus Rhei Aromaticus.  
Syrupus Rosæ.  
Syrupus Rubi.  
Syrupus Rubi Idæi.

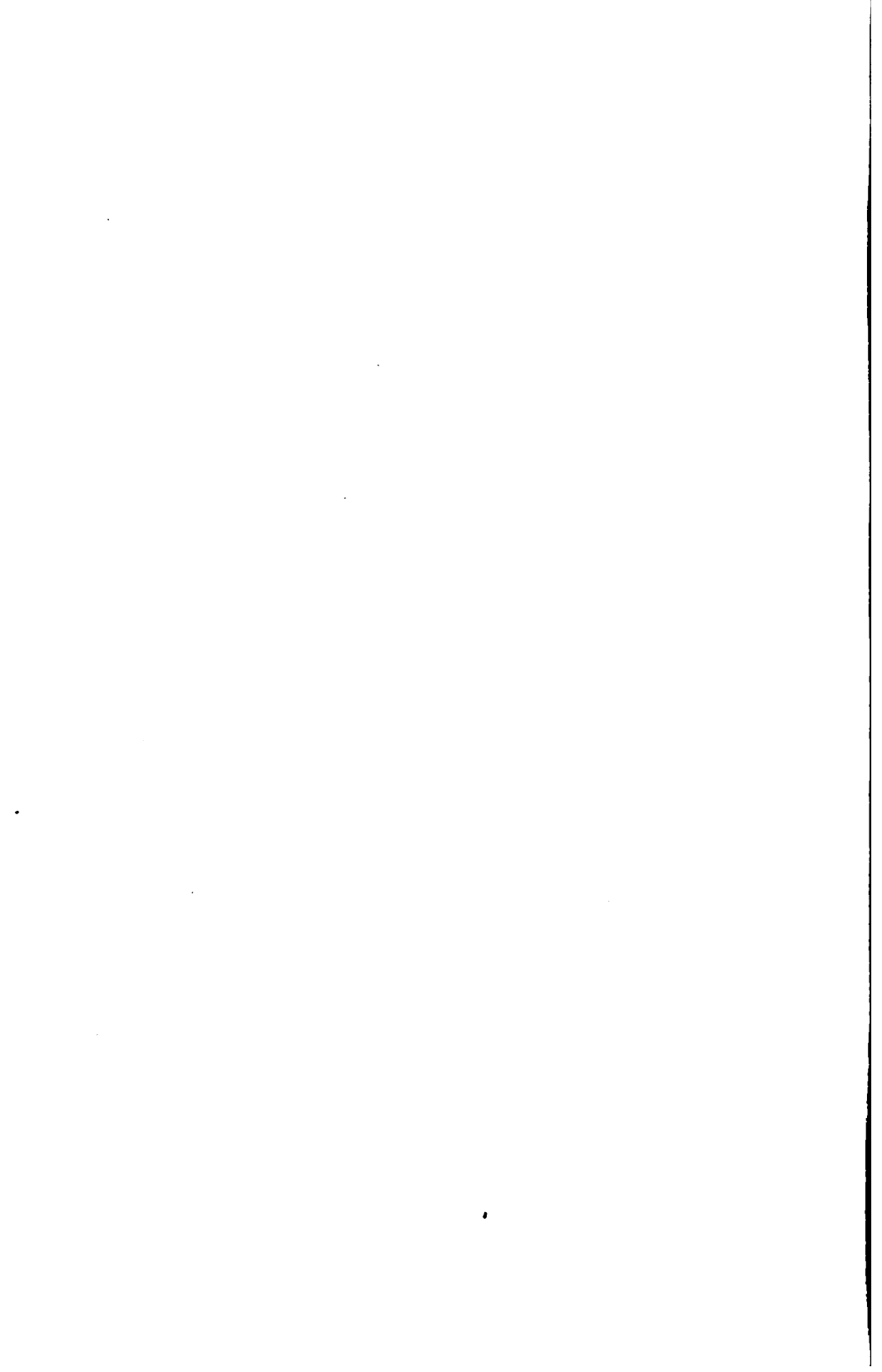
Syrupus Sarsaparillæ Compositus.  
Syrupus Scillæ.  
Syrupus Scillæ Compositus.  
Syrupus Senegæ.  
Syrupus Sennæ.  
Syrupus Tolutanus.  
Syrupus Zingiberis.

### Tincturæ.

#### TINCTURES.

Tinctures are alcoholic or hydro-alcoholic solutions of various medicinal substances. They are prepared either by percolation, maceration, or digestion. Tinctures differ from fluid extracts in being weaker, and in the fact that they do not all bear the same relation to the amount of drugs used. A few tinctures are prepared by exhausting the drug by percolation with aromatic spirit of ammonia. These are termed *ammoniated tinctures*. Tinctures are among the stable preparations, inasmuch as the alcohol acts as a preservative and at the same time will not dissolve some inert substances which water would bring out. Tinctures are prepared by having the drug of the proper degree of fineness, and, if a compound preparation, the drugs well mixed; then exhausting them either by percolation, maceration, or digestion. Tinctures prepared from gummy drugs are generally prepared by maceration or digestion; they can, however, be prepared by percolation by mixing the drugs with an equal bulk of clean, coarse sand before placing in the percolator. The best degree of fineness for drugs to be percolated is from a No. 20 to a No. 60 powder, depending on the texture of the drug. After a drug is properly packed in the percolator it should be thoroughly saturated with the menstruum, the lower opening of the percolator being tightly corked, and the mass allowed to macerate for from three to five days. Many of the stronger tinctures may be used by veterinarians in practice on the larger animals, but with a few exceptions the fluid extracts are more extensively used on account of their concentration. The official list in the





present edition comprises seventy-two tinctures, some being compound, but the majority being simple preparations.

## OFFICIAL TINCTURES.

<i>Tinctura Aconiti.</i>	<i>Tinctura Humuli.</i>
<i>Tinctura Aloes.</i>	<i>Tinctura Hydrastis.</i>
<i>Tinctura Aloes et Myrrhæ.</i>	<i>Tinctura Hyoscyami.</i>
<i>Tinctura Arnicæ Florum.</i>	<i>Tinctura Iodi.</i>
<i>Tinctura Arnicæ Radicis.</i>	<i>Tinctura Ipecacuanhæ et Opii.</i>
<i>Tinctura Asafœtidæ.</i>	<i>Tinctura Kino.</i>
<i>Tinctura Aurantii Amari.</i>	<i>Tinctura Krameriæ.</i>
<i>Tinctura Aurantii Dulcis.</i>	<i>Tinctura Lactucarii.</i>
<i>Tinctura Belladonnæ Foliorum.</i>	<i>Tinctura Lavandulæ Composita.</i>
<i>Tinctura Benzoini.</i>	<i>Tinctura Lobeliæ.</i>
<i>Tinctura Benzoini Composita.</i>	<i>Tinctura Matico.</i>
<i>Tinctura Bryoniæ.</i>	<i>Tinctura Moschi.</i>
<i>Tinctura Calendulæ.</i>	<i>Tinctura Myrrhæ.</i>
<i>Tinctura Calumbæ.</i>	<i>Tinctura Nucis Vomice.</i>
<i>Tinctura Cannabis Indicæ.</i>	<i>Tinctura Opii.</i>
<i>Tinctura Cantharidis.</i>	<i>Tinctura Opii Camphorata.</i>
<i>Tinctura Capsici.</i>	<i>Tinctura Opii Deodorati.</i>
<i>Tinctura Cardamomi.</i>	<i>Tinctura Physostigmatis.</i>
<i>Tinctura Cardamomi Composita.</i>	<i>Tinctura Pyrethri.</i>
<i>Tinctura Catechu Composita.</i>	<i>Tinctura Quassiæ.</i>
<i>Tinctura Chiratæ.</i>	<i>Tinctura Quillajæ.</i>
<i>Tinctura Cimicifugæ.</i>	<i>Tinctura Rhei.</i>
<i>Tinctura Cinchonæ.</i>	<i>Tinctura Rhei Aromatica.</i>
<i>Tinctura Cinchonæ Composita.</i>	<i>Tinctura Rhei Dulcis.</i>
<i>Tinctura Cinnamomi.</i>	<i>Tinctura Sanguinaræ.</i>
<i>Tinctura Colchici Seminis.</i>	<i>Tinctura Scillæ.</i>
<i>Tinctura Croci.</i>	<i>Tinctura Serpentariæ.</i>
<i>Tinctura Cubebæ.</i>	<i>Tinctura Stramonii Seminis.</i>
<i>Tinctura Digitalis.</i>	<i>Tinctura Strophanthi.</i>
<i>Tinctura Ferri Chloridi.</i>	<i>Tinctura Sumbul.</i>
<i>Tinctura Gallæ.</i>	<i>Tinctura Tolutana.</i>
<i>Tinctura Gelsemii.</i>	<i>Tinctura Valerianæ.</i>
<i>Tinctura Gentianæ Composita.</i>	<i>Tinctura Valerianæ Ammoniata.</i>
<i>Tinctura Guaiaci.</i>	<i>Tinctura Vanillæ.</i>
<i>Tinctura Guaiaci Ammoniata.</i>	<i>Tinctura Veratri Viridis.</i>
<i>Tinctura Herbarum Recentium.</i>	<i>Tinctura Zingiberis.</i>

**Trochisci.****TROCHES.**

Troches are small, dry, solid, usually flattened masses, consisting of medicinal agents incorporated with sugar and mucilage. These preparations are intended to be kept in the mouth and allowed to dissolve slowly, their action being—partially, at least—local. They are prepared by mixing the finely powdered drugs and sugar with mucilage of tragacanth, flavoring the mass, rolling it out in thin, flattened sheets, and cutting it with punches of suitable size and shape. They are then dried. Fifteen official troches are recognized.

**OFFICIAL TROCHES.**

Trochisci Acidi Tannici.

Trochisci Ammonii Chloridi.

Trochisci Catechu.

Trochisci Cretæ.

Trochisci Cubebæ.

Trochisci Ferri.

Trochisci Glycyrrhizæ et Opii.

Trochisci Ipecacuanhæ.

Trochisci Kramerizæ.

Trochisci Menthæ Piperitæ.

Trochisci Morphinæ et Ipecacuanhæ.

Trochisci Potassii Chloratis.

Trochisci Santonini.

Trochisci Sodii Bicarbonatis.

Trochisci Zingiberis.

**Unguenta.****OINTMENTS.**

Ointments are unctuous or greasy preparations, softer than cerates, and intended to be applied to the skin by inunction. They are prepared either by triturating the finely powdered medicinal substance directly with unguentum or lard, or by liquefying the greasy base, incorporating the remedial agent, and stirring until cool. If the active ingredients cannot be readily powdered they should be softened with water or diluted alcohol before being mixed with the base. Ointments tend to become rancid. This change may, to a great extent, be pre-







vented by adding benzoin to the preparation. There are twenty-three ointments official in the pharmacopœia.

## OFFICIAL OINTMENTS.

Unguentum.	Unguentum Hydrargyri Oxidi
Unguentum Acidi Carbolici.	Rubri.
Unguentum Acidi Tannici.	Unguentum Iodi.
Unguentum Aquæ Rosæ.	Unguentum Iodoformi.
Unguentum Belladonnæ.	Unguentum Picis Liquidæ.
Unguentum Chrysarobini.	Unguentum Plumbi Carbonatis.
Unguentum Diachylon.	Unguentum Plumbi Iodidi.
Unguentum Gallæ.	Unguentum Potassii Iodidi.
Unguentum Hydrargyri.	Unguentum Stramonii.
Unguentum Hydrargyri Ammoni-	Unguentum Sulphuris.
ati.	Unguentum Veratrinæ.
Unguentum Hydrargyri Nitratis.	Unguentum Zinci Oxidi.
Unguentum Hydrargyri Oxidi	
Flavi.	

## Vina.

## WINES.

Wines are solutions of various medicinal substances in white wine. This class of preparations keeps better than infusions or decoctions, but is inferior in this respect to tinctures and other stronger alcoholic liquids. The wines are also much weaker than tinctures and less stimulating on account of the low percentage of alcohol that they contain. The white wine recognized by the pharmacopœia and directed to be used is an alcoholic liquid made by fermenting the juice of fresh grapes, the fruit of *Vitis vinifera*, which have been deprived of their seeds and skin. Sherry wine should be preferred, as it meets these requirements. There are ten official wines.

## OFFICIAL WINES.

Vinum Album.	Vinum Ferri Amarum.
Vinum Antimonii.	Vinum Ferri Citratis.
Vinum Colchici Radicis.	Vinum Ipecacuanhæ.
Vinum Colchici Seminis.	Vinum Opii.
Vinum Ergotæ.	Vinum Rubrum.

**OFFICIAL PREPARATIONS.**

The following is a partial list of those preparations which were adopted by the National Convention of 1890 for revising the pharmacopœia, especially those that are compound and are commonly prepared by the pharmacist. Those preparations described in Part II under "Materia Medica" will be omitted here and the ingredients, only, of each preparation will be specified, with the amounts; but the process of manufacture will not be repeated.

**Aceta.****VINEGARS.****ACETUM OPII.—Vinegar of Opium.**

Opium .....	100.0 gm.
Nutmeg .....	30.0 gm.
Sugar .....	200.0 gm.
Dilute Acetic Acid.....	q. s. ut ft. 1000.0 c. c.

M. S. A.

**ACETUM SCILLÆ.—Vinegar of Squills.**

Squill (No. 30).....	100.0 gm.
Dilute Acetic Acid.....	q. s. ut ft. 1000.0 c. c.

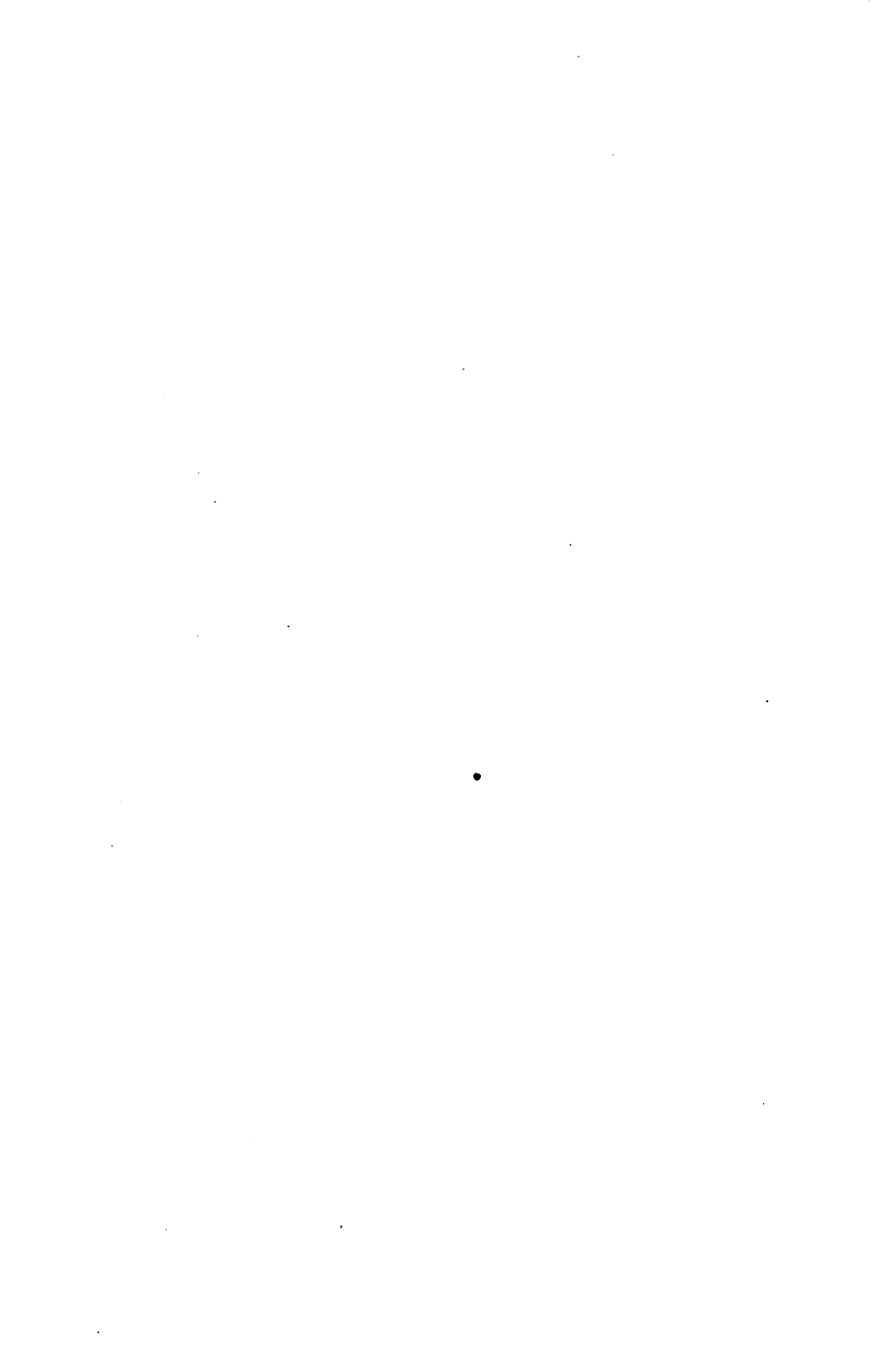
M. S. A.

**Acida.****ACIDS.**

**ACIDUM HYDROCHLORICUM DILUTUM.**—An aqueous solution of hydrochloric acid, containing 10 per cent., by weight, of hydrochloric acid. Prepared by mixing 100.0 gm. of the strong acid with 219.0 gm. of water.

**ACIDUM NITRICUM DILUTUM.**—An aqueous solution of nitric acid, containing 10 per cent., by weight, of absolute nitric acid. Prepared by mixing 180.0 gm. of the strong acid with 820.0 gm. of water.

**ACIDUM PHOSPHORICUM DILUTUM.**—An aqueous solution of phosphoric acid containing 10 per cent., by weight, of absolute orthophosphoric acid. Prepared by mixing 100.0 gm. of acid with 750.0 gm. of water.





**ACIDUM HYDROCYANICUM DILUTUM.**—A liquid composed of 2 per cent., by weight, of absolute hydrocyanic acid (HCN) and 98 per cent. of water.

**ACIDUM SULPHURICUM AROMATICUM.**—Aromatic Sulphuric Acid (Elixir of Vitriol).

Sulphuric Acid.....	100.0 c. c.
Tincture of Ginger.....	50.0 c. c.
Oil of Cinnamon.....	1.0 c. c.
Alcohol.....	q. s. ft. 1000.0 c. c.

M. S. A.

**ACIDUM SULPHURICUM DILUTUM.**—An aqueous solution of absolute sulphuric acid of 10-per-cent. strength, by weight: 100.0 gm. of acid to 825.0 gm. of water.

### Adeps.

#### LARD.

**ADEPS BENZOINATUS.**—Benzoinated Lard. Pure lard impregnated with the volatile principles of gum benzoin.

Lard .....	1000.0 gm.
Benzoin (powdered).....	20.0 gm.

M. S. A.

### Alcoholis.

**ALCOHOLIS DILUTUM.**—A liquid composed of about 41 per cent., by weight, of absolute ethyl alcohol.

Alcohol .....	410.0 gm., or 500.0 c. c.
Water .....	500.0 gm., or 500.0 c. c.

Mix.

### Aquæ.

#### WATERS.

**AQUA CHLORI.**—Chlorine-water. A 0.4-per-cent. aqueous solution of chlorine-gas.

Manganese Dioxide.....	10.0 gm.
Hydrochloric Acid.....	35.0 c. c.
Water .....	75.0 c. c.
Distilled Water.....	400.0 c. c.

M. S. A.

**AQUA HYDROGENII DIOXIDI.**—Solution of Peroxide of Hydrogen.

A slightly acid aqueous solution of hydrogen dioxide ( $H_2O_2$ ), containing, when fresh, 3 per cent., by weight, of pure dioxide.

Barium Dioxide..... 300.0 gm.

Phosphoric Acid,

Diluted Sulphuric Acid,

Distilled Water..... of each q. s.

M. S. A.

**AQUA ROSÆ FORTIOR.**—Stronger Rose-water. Water saturated with volatile oil of rose-petals, obtained in the distillation of oil of rose.

**AQUA ROSÆ.**—Rose-water. Prepared by diluting stronger rose-water with equal parts of distilled water.

**AQUA AURANTII FLORUM FORTIOR.**—Stronger Orange-flower Water. Prepared like stronger rose-water.

**AQUA AURANTII FLORUM.**—Orange-flower Water. Prepared like aqua rosæ.

All the other official waters are prepared by incorporating the medicinal substance, mostly a volatile oil, with water, by the intervention of precipitated phosphate calcium.

**Cerata.****CERATES.****CERATUM CAMPHORÆ.**—Camphor Cerate.

Camphor Liniment..... 100.0 gm.

White Wax..... 300.0 gm.

Lard ..... 600.0 gm.

M. S. A.

**CERATUM CANTHARIDIS.**—Cantharidal, or Blistering, Cerate.

Cantharides ..... 320.0 gm.

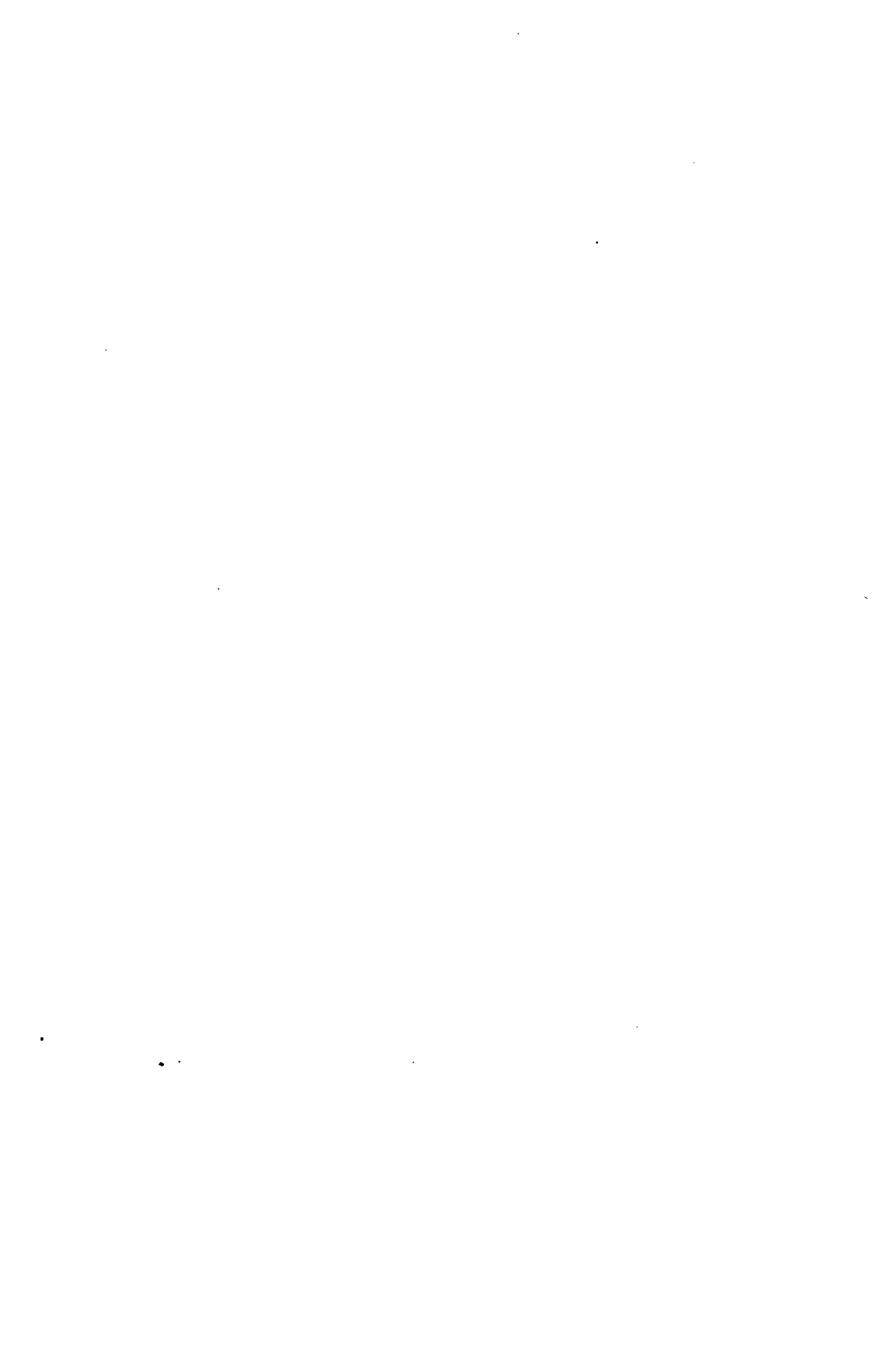
Yellow Wax,

Resin..... of each 180.0 gm.

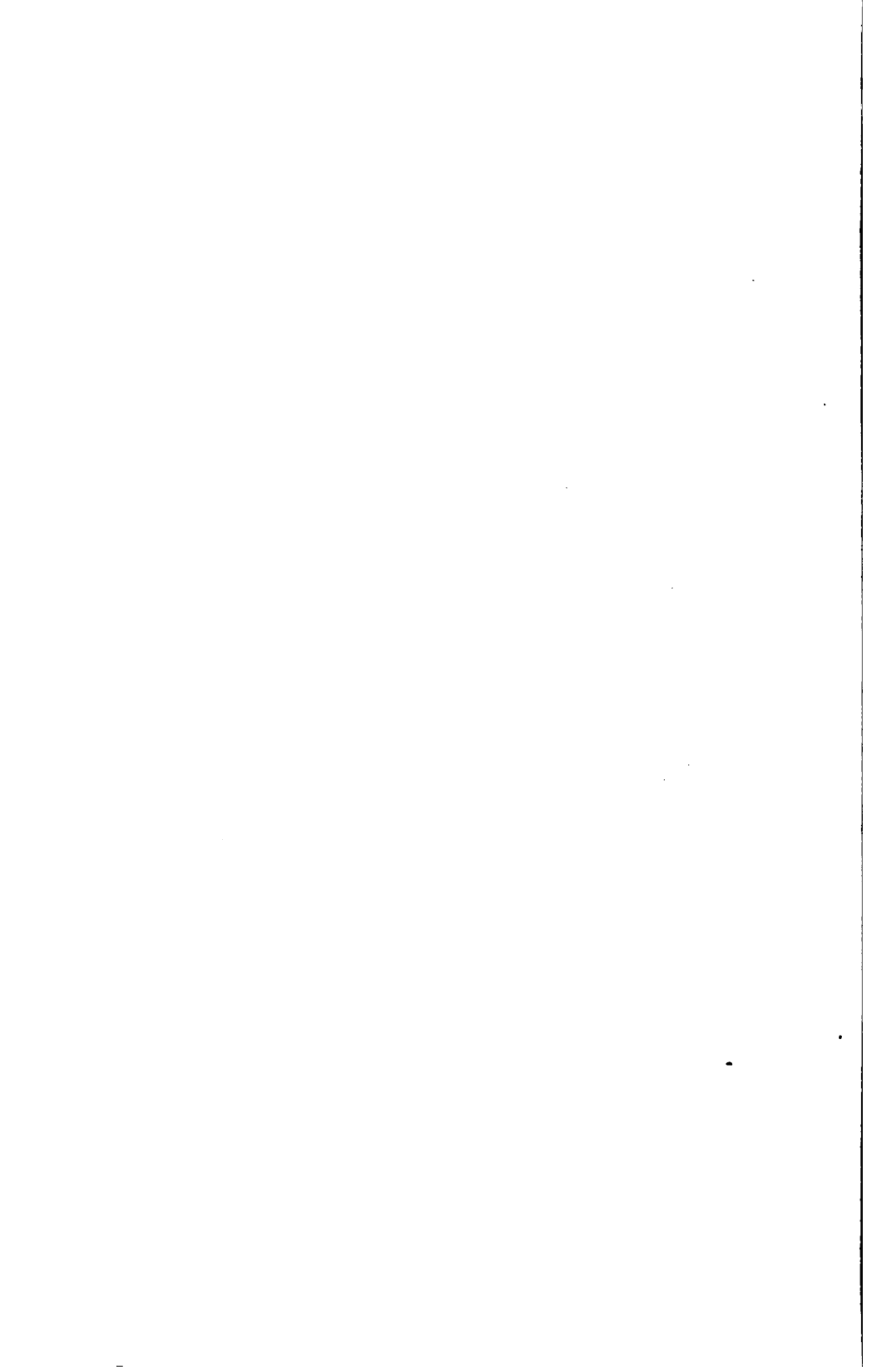
Lard ..... 220.0 gm.

Oil of Turpentine..... 150.0 c. c.

M. S. A.







**CERATUM PLUMBI SUBACETATIS.**—Cerate of Subacetate of Lead, Goulard's Cerate.

Solution of Lead Subacetate.....	200.0 c. c.
Camphor Cerate.....	800.0 gm.

M. S. A.

**CERATUM RESINÆ.**—Resin Cerate, Basilicon Ointment.

Resin .....	350.0 gm.
Yellow Wax.....	150.0 gm.
Lard .....	500.0 gm.

M. S. A.

**Collodia.****COLLODIONS.****COLLODIUM CANTHARIDATUM.**—Cantharidal, or Blistering Collodion.

Cantharides (No. 60).....	60.0 gm.
Flexible Collodion.....	85.0 gm.
Chloroform.....q. s. ft.	100.0 c. c.

M. S. A.

**COLLODIUM FLEXILE.**—Flexible Collodion.

Collodion .....	920.0 gm.
Canada Turpentine.....	50.0 gm.
Castor-oil .....	30.0 c. c.

M. S. A.

**COLLODIUM STYPTICUM.**—Styptic Collodion.

Tannic Acid.....	20.0 gm.
Alcohol .....	5.0 c. c.
Ether .....	25.0 c. c.
Collodion.....q. s. ft.	100.0 c. c.

M. S. A.

**Extracta.****EXTRACTS (SOLID).****EXTRACTUM COLOCYNTHIDIS COMPOSITUM.**—Compound Extract of Colocynth.

Extract of Colocynth.....	16.0 gm.
Purified Aloes.....	50.0 gm.
Cardamom .....	6.0 gm.
Resin of Scammony,	
Soap.....of each	14.0 gm.
Alcohol .....	10.0 c. c.
M. S. A.	

All the other extracts are prepared from the drug giving the name and an alcoholic or hydro-alcoholic menstruum of varying strengths.

**Extracta Fluida.****FLUID EXTRACTS.****EXTRACTUM SARSAPARILLÆ FLUIDUM COMPOSITUM.**—Compound Fluid Extract of Sarsaparilla.

Sarsaparilla .....	750.0 gm.
Glycyrrhiza .....	120.0 gm.
Sassafras .....	100.0 gm.
Mezereum .....	30.0 gm.
Glycerin .....	100.0 c. c.
Alcohol,	
Water.....of each q. s. ft.	1000.0 c. c.
M. S. A.	

The others are all simple fluid extracts prepared from the drug giving the name and glycerin with an alcoholic or hydro-alcoholic menstruum in varying proportions.

**Linimenta.****LINIMENTS.****LINIMENTUM AMMONIÆ.**—Ammonia or Volatile Liniment.

Ammonia-water .....	350.0 c. c.
Alcohol .....	50.0 c. c.
Cottonseed-oil .....	600.0 c. c.
M. S. A.	





**LINIMENTUM BELLADONNÆ.—Belladonna Liniment.**

Camphor .....	50.0 gm.
Fluid Extract of Belladonna.....q. s. ft.	1000.0 c. c.

M. S. A.

**LINIMENTUM CALCIS.—Liniment of Lime, Carron Oil.** A mixture of a solution of lime and linseed-oil, equal parts of each.

**LINIMENTUM CAMPHORÆ.—Camphor Liniment.**

Camphor .....	200.0 gm.
Cottonseed-oil .....	800.0 c. c.

M. S. A.

**LINIMENTUM CHLOROFORMI.—Liniment of Chloroform.**

Chloroform .....	300.0 c. c.
Soap Liniment.....	700.0 c. c.

M. S. A.

**LINIMENTUM SAPONIS.—Soap Liniment.**

Soap .....	70.0 gm.
Camphor .....	45.0 gm.
Oil of Rosemary.....	10.0 c. c.
Alcohol .....	750.0 c. c.
Water.....q. s. ft.	1000.0 c. c.

M. S. A.

**LINIMENTUM SAPONIS MOLLIS.—Liniment of Soft Soap.**

Soft Soap.....	650.0 gm.
Oil of Lavender.....	20.0 c. c.
Alcohol .....	300.0 c. c.
Water.....q. s. ft.	1000.0 c. c.

M. S. A.

**LINIMENTUM SINAPIS COMPOSITUM.—Compound Mustard Liniment.**

Volatile Oil of Mustard.....	30.0 c. c.
Fluid Extract of Mezereum.....	200.0 c. c.
Camphor .....	60.0 gm.
Castor-oil .....	150.0 c. c.
Alcohol.....q. s. ft.	1000.0 c. c.

M. S. A.

**LINIMENTUM TEREBINTHINÆ.—Turpentine Liniment.**

Resin Cerate.....	650.0 gm.
Oil of Turpentine.....	350.0 gm.
M. S. A.	

**Liquores.****SOLUTIONS.****LIQUOR ARSENICI ET HYDRARGYRI IODIDI.—Solution of Arsenic and Mercuric Iodide, Donovan's Solution.**

Arsenic Iodide,	
Red Mercuric Iodide.....	of each 10.0 gm.
Distilled Water.....	q. s. ft. 1000.0 c. c.
M. S. A.	

**LIQUOR IODI COMPOSITUS.—Compound Iodine Solution, Lugol's Solution.**

Iodine .....	5.0 gm.
Potassium Iodide.....	10.0 gm.
Distilled Water .....	q. s. ft. 100.0 c. c.
M. S. A.	

**LIQUOR PLUMBI SUBACERATIS.—Solution of Subacetate of Lead, Goulard's Solution.**

Lead Acetate.....	170.0 gm.
Lead Oxide.....	100.0 gm.
Distilled Water .....	q. s. ft. 1000.0 c. c.
M. S. A.	

**LIQUOR POTASSII ARSENITIS.—Solution Potassium Arsenite, Fowler's Solution.**

Arsenous Acid.....	10.0 gm.
Bicarbonate of Potassium.....	20.0 gm.
Compound Tincture of Lavender.....	30.0 c. c.
Distilled Water.....	q. s. ft. 1000.0 c. c.
M. S. A.	







**Misturæ.****MIXTURES.****MISTURA CRETÆ.—Chalk Mixture.**

Compound Chalk Powder.....	200.0 gm.
Cinnamon-water .....	400.0 c. c.
Water.....q. s. ft.	1000.0 c. c.
M. S. A.	

**MISTURA FERRI COMPOSITA.—Compound Iron Mixture, Griffith's Mixture.**

Ferrous Sulphate.....	6.0 gm.
Myrrh,	
Sugar.....of each	18.0 gm.
Potassium Carbonate.....	8.0 gm.
Spirit of Lavender.....	60.0 c. c.
Rose-water.....q. s. ft.	1000.0 c. c.
M. S. A.	

**MISTURA GLYCYRRHIZÆ COMPOSITA.—Compound Licorice Mixture, Brown Mixture.**

Pure Extract of Licorice.....	30.0 gm.
Syrup .....	50.0 c. c.
Mucilage of Acacia.....	100.0 c. c.
Camphorated Tincture of Opium.....	120.0 c. c.
Wine of Antimony.....	60.0 c. c.
Spirit of Nitrous Ether.....	30.0 c. c.
Water.....q. s. ft.	1000.0 c. c.
M. S. A.	

**MISTURA RHEI ET SODÆ.—Mixture of Rhubarb and Soda.**

Sodium Bicarbonate.....	35.0 gm.
Fluid Extract of Rhubarb.....	15.0 c. c.
Fluid Extract of Ipecac.....	3.0 c. c.
Glycerin .....	350.0 c. c.
Spirit of Peppermint.....	35.0 c. c.
Water.....q. s. ft.	1000.0 c. c.
M. S. A.	

**Pilulæ.****PILLS.****PILULÆ ALOES.—Pills of Aloes.**

Purified Aloes,  
 Soap.....of each 13.0 gm.  
 Water.....q. s. ft. pil. no. C.  
 M. S. A.

**PILULÆ ALOES ET ASAFÆTIDÆ.—Pills of Aloes and Asafœtida.**

Purified Aloes,  
 Asafœtida,  
 Soap.....of each 9.0 gm.  
 Water.....q. s. ft. pil. no. C.  
 M. S. A.

**PILULÆ ALOES ET FERRI.—Pills of Aloes and Iron.**

Purified Aloes,  
 Dried Sulphate of Iron,  
 Aromatic Powder.....of each 7.0 gm.  
 Confection of Roses.....q. s. ft. pil. no. C.  
 M. S. A.

**PILULÆ ALOES ET MASTICHES.—Pills of Aloes and Mastic.**

Purified Aloes..... 13.0 gm.  
 Mastic ..... 4.0 gm.  
 Red Rose..... 3.0 gm.  
 Water.....q. s. ft. pil. no. C.  
 M. S. A.

**PILULÆ ALOES ET MYRRHÆ.—Pills of Aloes and Myrrh.**

Purified Aloes..... 13.0 gm.  
 Myrrh ..... 6.0 gm.  
 Aromatic Powder..... 4.0 gm.  
 Syrup.....q. s. ft. pil. no. C.  
 M. S. A.





PILULÆ ANTIMONII COMPOSITÆ.—Compound Pills of Antimony.

Sulphurated Antimony,	
Mild Mercurous Chloride.....of each	4.0 gm.
Guaiac .....	8.0 gm.
Castor-oil.....q. s. ft. pil. no. C.	
M. S. A.	

PILULÆ CATHARTICÆ COMPOSITÆ.—Compound Cathartic Pills.

Compound Extract of Colocynth.....	80.0 gm.
Mild Mercurous Chloride.....	60.0 gm.
Extract of Jalap.....	30.0 gm.
Gamboge .....	15.0 gm.
Water.....q. s. ft. mas. et in pil. no. M div.	
M. S. A.	

PILULÆ FERRI CARBONATIS.—Pills of Carbonate of Iron.

Ferrous Sulphate.....	16.0 gm.
Potassium Carbonate.....	8.0 gm.
Sugar .....	4.0 gm.
Tragacanth,	
Althæa .....	of each 1.0 gm.
Glycerin,	
Water.....of each q. s. ft. pil. no. C.	
M. S. A.	

PILULÆ FERRI IODIDI.—Pills of Ferrous Iodide.

Reduced Iron.....	4.0 gm.
Iodine .....	5.0 gm.
Glycyrrhiza,	
Sugar.....of each	4.0 gm.
Extract of Glycyrrhiza,	
Acacia.....of each	1.0 gm.
Water,	
Balsam of Tolu,	
Ether.....of each, q. s. ft. pil. no. C.	
M. S. A.	

**PILULÆ PHOSPHORI.**—Pills of Phosphorus.

Phosphorus .....	0.06 gm.
Althæa,	
Acacia.....of each	6.0 gm.
Chloroform,	
Glycerin,	
Water,	
Balsam of Tolu,	
Ether.....of each, q. s. ft. pil. no. C.	
M. S. A.	

**PILULÆ RHEI COMPOSITÆ.**—Compound Pills of Rhubarb.

Rhubarb .....	13.0 gm.
Purified Aloes.....	10.0 gm.
Myrrh .....	6.0 gm.
Oil of Peppermint.....	0.5 c. c.
Water.....q. s. ft. pil. no. C.	
M. S. A.	

**Pulveres.****POWDERS.****PULVIS ANTIMONIALIS.**—Antimonial Powder, James's Powder.

Antimony Oxide.....	33.0 gm.
Precipitated Calcium Phosphate.....	67.0 gm.
M.	

**PULVIS AROMATICUS.**—Aromatic Powder.

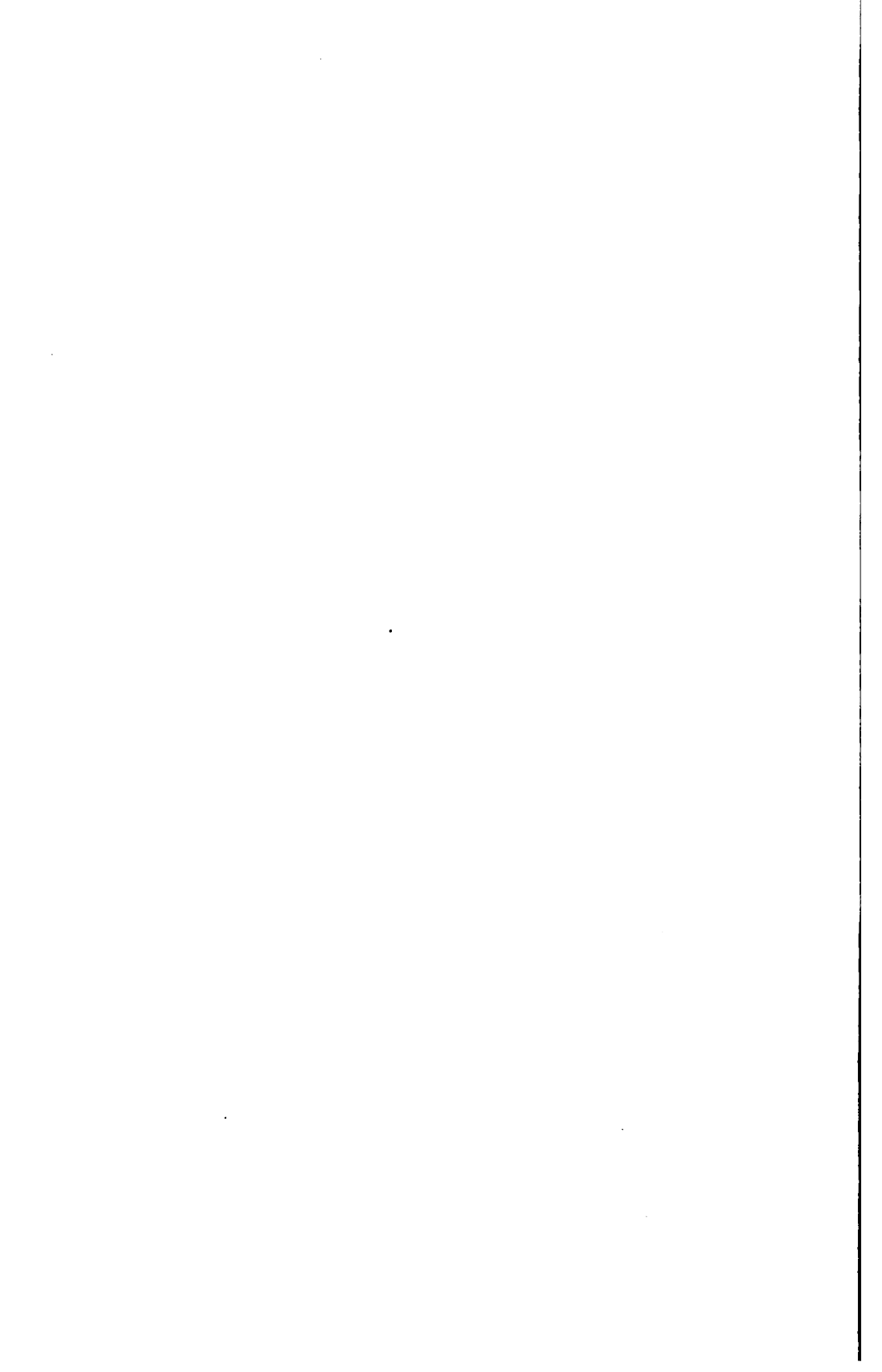
Ceylon Cinnamon,	
Ginger.....of each	35.0 gm.
Cardamom,	
Nutmeg.....of each	15.0 gm.
M.	

**PULVIS CRETÆ COMPOSITUS.**—Compound Powder of Chalk.

Prepared Chalk.....	30.0 gm.
Acacia .....	20.0 gm.
Sugar .....	50.0 gm.
M.	







PULVIS GLYCYRRHIZÆ COMPOSITUM.—Compound Powder of Licorice.

Senna .....	180.0 gm.
Glycyrrhiza .....	236.0 gm.
Washed Sulphur.....	80.0 gm.
Oil of Fennel.....	4.0 gm.
Sugar .....	500.0 gm.

M.

PULVIS IPECACUANHÆ ET OPII.—Powder of Ipecac and Opium, Dover's Powder.

Ipecac,	
Powdered Opium.....of each	10.0 gm.
Sugar of Milk.....	80.0 gm.

M.

PULVIS JALAPÆ COMPOSITUS.—Compound Powder of Jalap.

Jalap .....	35.0 gm.
Potassium Bitartrate.....	65.0 gm.

M.

PULVIS MORPHINÆ COMPOSITUS.—Compound Powder of Morphine, Tully's Powder.

Morphine Sulphate.....	1.0 gm.
Camphor .....	19.0 gm.
Glycyrrhiza,	
Precipitated Carbonate of Calcium.....of each	20.0 gm.
Alcohol .....	q. s.

M.

PULVIS RHEI COMPOSITUS.—Compound Powder of Rhubarb.

Rhubarb .....	25.0 gm.
Magnesia .....	65.0 gm.
Ginger .....	10.0 gm.

M.

**Spiritus.****SPIRITS.**

**SPIRITUS ÆTHERIS COMPOSITUS.**—Compound Spirit of Ether,  
Hoffmann's Anodyne.

Ether .....	325.0 c. c.
Alcohol .....	650.0 c. c.
Ethereal Oil.....	25.0 c. c.

M.

**SPIRITUS ÆTHERIS NITROSI.**—Spirit of Nitrous Ether, Sweet  
Spirit of Nitre.

Sodium Nitrate.....	770.0 gm.
Sulphuric Acid .....	520.0 c. c.
Sodium Carbonate.....	10.0 gm.
Potassium Carbonate (well dried).....	30.0 gm.
Deodorized Alcohol,	
Water.....of each	q. s.

M. S. A.

**SPIRITUS AMMONIÆ.**—Spirit of Ammonia. An alcoholic solution of ammonia, containing 10 per cent., by weight, of  $\text{NH}_3$  gas. Prepared by heating together stronger water of ammonia and recently distilled alcohol.

**SPIRITUS AMMONIÆ AROMATICUS.**—Aromatic Spirit of Ammonia.

Ammonium Carbonate.....	34.0 gm.
Ammonia-water .....	90.0 c. c.
Oil of Lemon.....	10.0 c. c.
Oil of Lavender Flowers,	
Oil of Nutmeg.....of each	1.0 c. c.
Alcohol .....	700.0 c. c.
Distilled Water.....q. s. ft.	1000.0 c. c.

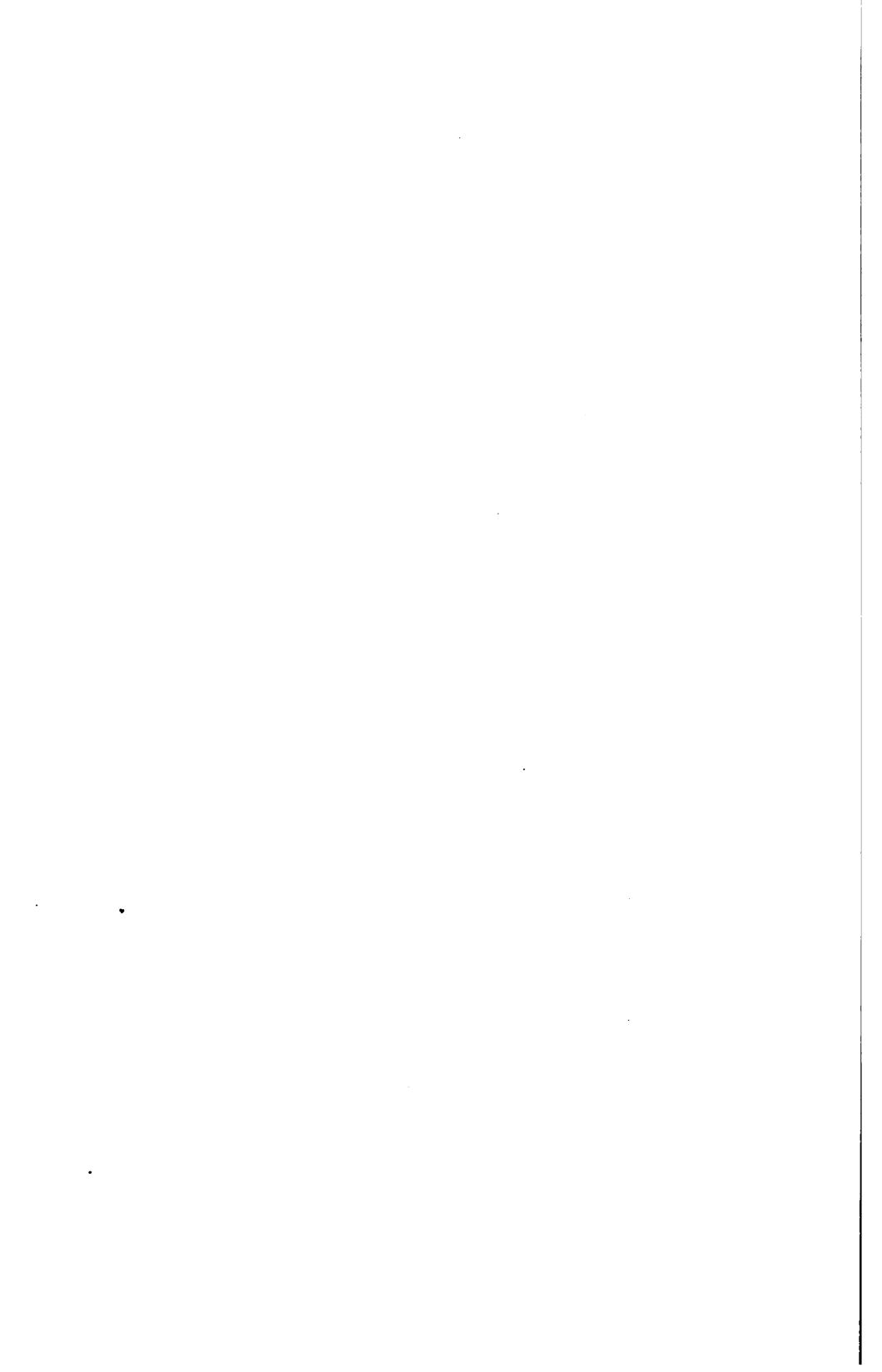
M. S. A.

**SPIRITUS AURANTII COMPOSITUS.**—Compound Spirit of Orange.

Oil of Orange-peel.....	200.0 c. c.
Oil of Lemon.....	50.0 c. c.
Oil of Coriander.....	20.0 c. c.
Oil of Anise.....	5.0 c. c.
Deodorized Alcohol.....q. s. ft.	1000.0 c. c.

M.





**SPIRITUS GLONOI.**—Spirit of Glonoin, Spirit of Nitroglycerin.  
A 1-per-cent. alcoholic solution of nitroglycerin.

The remainder of the official spirits are simply alcoholic solutions of the substance from which they are named.

### Syrupi.

#### SYRUPS.

**SYRUPUS FERRI IODIDI.**—Syrup of the Iodide of Iron.

Iron (fine wire).....	25.0 gm.
Iodine .....	83.0 gm.
Syrup,	
Water (distilled).....of each, q. s. ft.	1000.0 c. c.
M. S. A.	

**SYRUPUS PRUNI VIRGINIANÆ.**—Syrup of Wild Cherry.

Wild Cherry.....	150.0 gm.
Sugar .....	700.0 gm.
Glycerin .....	150.0 c. c.
Water.....q. s. ft.	1000.0 c. c.
M. S. A.	

**SYRUPUS RHEI.**—Syrup of Rhubarb.

Fluid Extract of Rhubarb.....	100.0 c. c.
Spirit of Cinnamon.....	4.0 c. c.
Potassium Carbonate.....	10.0 gm.
Glycerin,	
Water.....of each	50.0 c. c.
Syrup.....q. s. ft.	1000.0 c. c.
M. S. A.	

**SYRUPUS SARSAPARILLÆ COMPOSITA.**—Compound Syrup of Sarsaparilla.

Fluid Extract of Sarsaparilla.....	200.0 c. c.
Fluid Extract of Glycyrrhiza,	
Fluid Extract of Senna.....of each	15.0 c. c.
Sugar .....	650.0 gm.
Oil of Sassafras,	
Oil of Anise,	
Oil of Gaultheria.....of each	0.1 c. c.
Water.....q. s. ft.	1000.0 c. c.
M. S. A.	

**SYRUPUS SCILLÆ.—Syrup of Squills.**

Vinegar of Squill.....	450.0 c. c.
Sugar .....	800.0 gm.
Water.....q. s. ft.	1000.0 c. c.

M. S. A.

**SYRUPUS SCILLÆ COMPOSITUS.—Compound Syrup of Squills.**

Fluid Extract of Squill,	
Fluid Extract of Senega.....of each	80.0 c. c.
Antimony and Potassium Tartrate.....	2.0 gm.
Precipitated Phosphate of Calcium.....	10.0 gm.
Sugar .....	750.0 gm.
Water.....q. s. ft.	1000.0 c. c.

M. S. A.

**Tincturæ.****TINCTURES.****TINCTURA ALOES ET MYRRHÆ.—Tincture of Aloes and Myrrh.**

Purified Aloes,	
Myrrh,	
Licorice-root.....of each	100.0 gm.
Alcohol, 3 parts	} .....q. s. ft. 1000.0 c. c.
Water, 1 part	

M. S. A.

**TINCTURA BENZOINI COMPOSITA.—Compound Tincture of Benzoin.**

Benzoin .....	120.0 gm.
Purified Aloes.....	20.0 gm.
Storax .....	80.0 gm.
Balsam of Tolu.....	40.0 gm.
Alcohol.....q. s. ft.	1000.0 c. c.

M. S. A.

**TINCTURA CARDAMOMI COMPOSITA.—Compound Tincture of Cardamom.**

Cardamom,	
Cassia Cinnamon.....of each	20.0 gm.
Caraway .....	10.0 gm.
Cochineal .....	5.0 gm.
Glycerin .....	50.0 c. c.
Diluted Alcohol.....q. s. ft.	1000.0 c. c.

M. S. A.







**TINCTURA CINCHONÆ COMPOSITA.**—Compound Tincture of Cinchona, Huxham's Tincture.

Red Cinchona.....	100.0 gm.
Bitter Orange-peel.....	80.0 gm.
Serpentaria .....	20.0 gm.
Glycerin .....	75.0 c. c.
Alcohol, 85 parts } .....	q. s. ft. 1000.0 c. c.
Water, 7.5 parts }	

M. S. A.

**TINCTURA FERRI CHLORIDI.**—Tincture of Ferric Chloride, Tincture of the Chloride of Iron. A hydro-alcoholic solution of ferric chloride, containing 13.6 per cent. of the anhydrous salt, equivalent to 4.69 per cent. of metallic iron.

Solution of Ferric Chloride.....	250.0 c. c.
Alcohol.....	q. s. ft. 1000.0 c. c.

M. S. A.

**TINCTURA GENTIANÆ COMPOSITA.**—Compound Tincture of Gentian.

Gentian .....	100.0 gm.
Bitter Orange-peel.....	40.0 gm.
Cardamom .....	10.0 gm.
Alcohol, 60 parts } .....	q. s. ft. 1000.0 c. c.
Water, 40 parts }	

M. S. A.

**TINCTURA LAVANDULÆ COMPOSITA.**—Compound Tincture of Lavender.

Oil of Lavender-flowers.....	8.0 c. c.
Oil of Rosemary.....	2.0 c. c.
Cassia Cinnamon.....	20.0 gm.
Cloves .....	5.0 gm.
Nutmeg,	
Red Saunders .....	of each 10.0 gm.
Alcohol .....	700.0 c. c.
Water .....	250.0 c. c.
Diluted Alcohol.....	q. s. ft. 1000.0 c. c.

M. S. A.

**TINCTURA OPII CAMPHORATA.**—Camphorated Tincture of Opium, Paregoric.

Powdered Opium,	
Benzoic Acid,	
Camphor,.....of each	4.0 gm.
Oil of Anise.....	4.0 c. c.
Glycerin .....	40.0 c. c.
Diluted Alcohol.....q. s. ft.	1000.0 c. c.
M. S. A.	

**TINCTURA RHEI AROMATICA.**—Aromatic Tincture of Rhubarb.

Rhubarb .....	200.0 gm.
Cassia Cinnamon,	
Cloves.....of each	40.0 gm.
Nutmeg .....	20.0 gm.
Glycerin .....	100.0 c. c.
Alcohol,	} .....
Water,	
Diluted Alcohol, }	
	.....q. s. ft. 1000.0 c. c.
M. S. A.	

The remainder of the official tinctures are simples, and are prepared from the drug giving them their name and alcohol of various strengths.

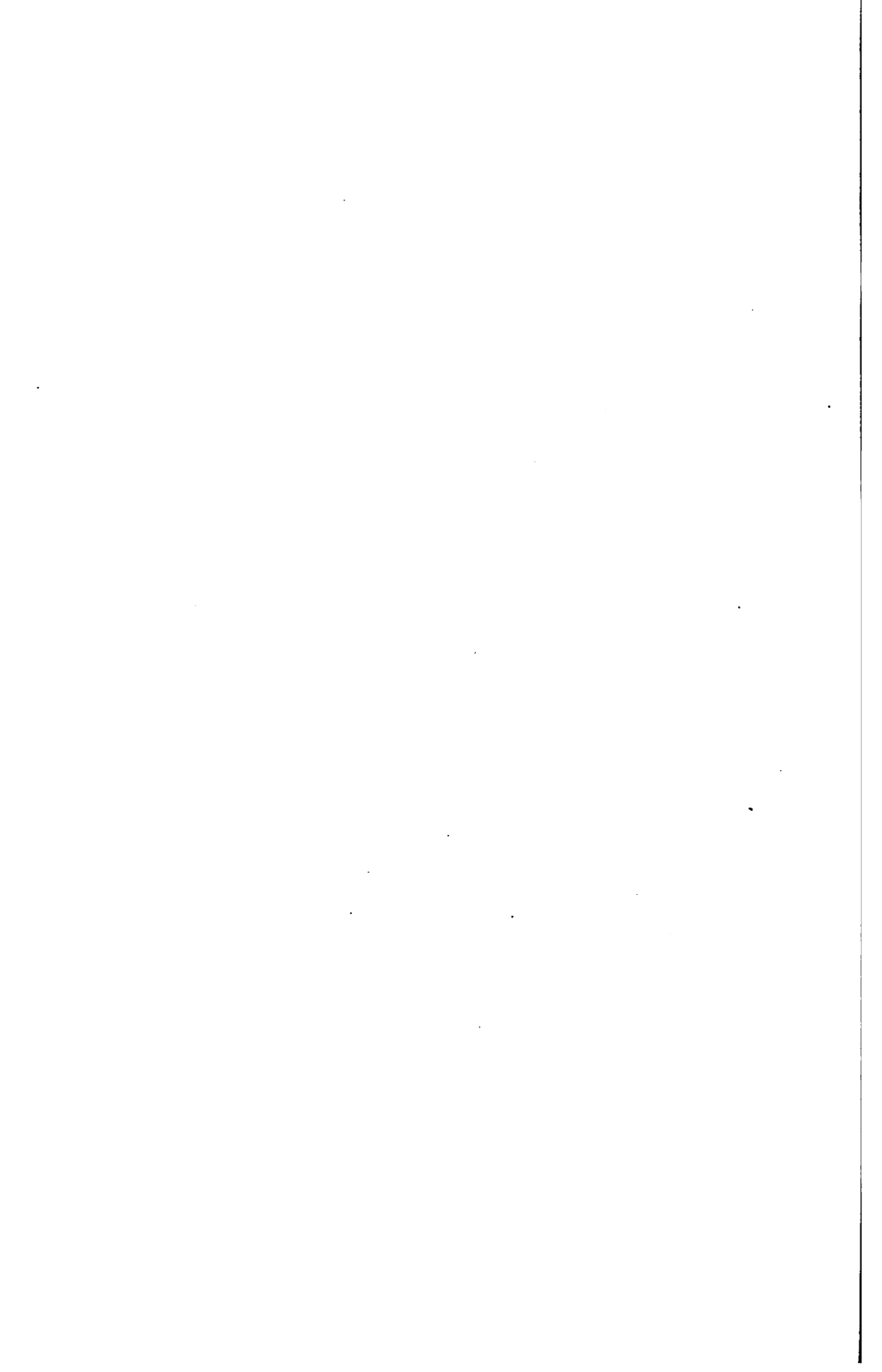
**Unguenta.**

**OINTMENTS.**

**UNGUENTUM HYDRARGYRI.**—Mercurial Ointment, Blue Ointment.

Mercury .....	500.0 gm.
Lard .....	250.0 gm.
Suet .....	230.0 gm.
Oleate of Mercury.....	20.0 gm.
M. S. A.	





**Vina.****MEDICATED WINES.****VINUM FERRI AMARA.**—Bitter Wine of Iron.

Soluble Iron and Quinine Citrate.....	50.0 gm.
Tincture of Sweet Orange-peel.....	150.0 c. c.
Syrup .....	300.0 c. c.
Water.....q. s. ft.	1000.0 c. c.

M. S. A.

**VINUM FERRI CITRATIS.**—Wine of Ferric Citrate.

Iron and Ammonium Citrate.....	40.0 gm.
Tincture of Sweet Orange-peel.....	150.0 c. c.
Syrup .....	100.0 c. c.
Water.....q. s. ft.	1000.0 c. c.

M. S. A.

**VINUM OPII.**—Wine of Opium.

Powdered Opium.....	100.0 gm.
Cassia Cinnamon,	
Cloves.....of each	10.0 gm.
Alcohol .....	150.0 c. c.
White Wine.....q. s. ft.	1000.0 c. c.

M. S. A.

**INCOMPATIBILITY.**

Incompatibility is that condition produced by bringing together substances which result in (1) *chemical* decomposition, (2) *pharmaceutical* dissociation, or (3) *therapeutic* opposition.

**Chemical Decomposition.**

That form of incompatibility where an alteration in the chemical composition of drugs takes place when they are mixed.

The most common forms of chemical incompatibility are:—

1. Precipitation of an insoluble salt, by adding one solution of a salt to another.

2. By decomposition of a salt in solution, containing a base united with a weak or volatile acid, by the addition of a stronger acid.

3. By precipitation of alkaloidal salts by adding, to their solutions, alkalies or salts, thus producing insoluble compounds. This is a dangerous form of incompatibility, as the alkaloidal salts of strychnine, morphine, etc., are poisonous and largely employed in medicine.

4. By unsightly discoloration and precipitation, produced by mixing ferric salts or their solutions with some form of tannin.

5. By decomposition of a solid substance in solution, without precipitation, by the formation of products which may or may not be soluble in the liquid.

#### **Pharmaceutical Incompatibility.**

This is that condition arising from the admixture of pharmaceutical preparations which causes physical dissociation of one or more of the constituents, but not a chemical change. This form is divided into two varieties, viz.:—

1. That resulting in the separation of active and important ingredients.

2. That resulting in the precipitation of inert constituents.

#### **Therapeutic Incompatibility.**

This is that form which consists of the union of drugs that are physiologically antagonistic; for instance, the administration of aconite and digitalis together or any combination of drugs that oppose each other in therapeutic actions.

#### **Rules.**

The following recognized rules will act as a guide to the practitioner:—

*Soluble salts* which can by mutual decomposition form an insoluble compound will undergo such decomposition when they







meet in solution, and will precipitate, unless in some very rare instances in which a double salt is formed.

*Soluble salts* which are not capable of forming an insoluble salt never precipitate, and rarely undergo decomposition when they meet in solution.

*Mineral acids* decompose salts of the weaker (carbonic, acetic, etc.) acids, and form ethers with alcohol and alcoholic preparations.

*Alkalies* precipitate the alkaloids and the soluble nonalkaline metallic salts.

*Glucosides*, such as santonin and glycyrrhizin, should not be prescribed with free acids or emulsin.

*Tannic acid* and all substances containing it are incompatible with alkaloids and drugs containing them, with albumin and gelatin, and with most soluble metallic salts used in medicine.

*Iodine* and *iodides* are incompatible with the alkaloids and the substances containing them, as well as with most soluble metallic salts. The *iodide of potassium* should always be prescribed alone, or only in combination with corrosive sublimate (with which it forms a double salt), or with iodine itself.

*Tinctures* and other *alcoholic preparations* containing resin precipitate the latter when water is added.

*Nitrate of silver* should always be prescribed alone, or in combination with opium or extract of hyoscyamus only. Most vegetable extracts decompose it, and with creosote it is said to make an explosive compound.

*Corrosive sublimate* is incompatible with almost everything, and should be given in simple syrup; even the compound syrup of sarsaparilla is said to decompose it.

*Syrup of squill*, containing acetic acid, is incompatible with carbonate of ammonium, but not with the chloride.

*Acetate* and *subacetate of lead* are incompatible with almost everything, but are nevertheless frequently used in lotion with opium, the insoluble compound formed being therapeutically active.

*Vegetable infusions* are generally incompatible with metallic salts.

# INDEX.

## A.

Acacia, 15  
 Aceta, 144, 166  
 Acetanilid, 15  
 Acetate of zinc, 133  
 Acetic acid, 17  
 Acetum, 16  
 Acida, 145, 166  
 Acidum aceticum, 17  
     arsenosum, 17  
     benzoicum, 18  
     boricum, 18  
     carbolicum, 19  
     chromicum, 20  
     citricum, 20  
     gallicum, 21  
     hydrochloricum, 21  
         dilutum, 21  
     hydrocyanicum dilutum, 22  
     nitricum, 23  
         dilutum, 23  
     nitrohydrochloricum, 23  
         dilutum, 23  
     salicylicum, 23  
     sulphuricum, 24  
         aromaticum, 24  
         dilutum, 24, 167  
     tannicum, 24  
 Aconiti folia, 25  
     radix, 25  
 Adeps, 26, 167  
     lanæ hydrosis, 26  
 Etheris, 27  
 Alcoholic liquors, 30  
 Alcoholis, 28  
     absolutum, 29  
     amylicum, 29  
     dilutum, 29, 167  
     methylicum, 30

(186)

Ale, 30  
 Aloe, 31  
     Barbadensis, 31  
     Capensis, 31  
     Socotrina, 31  
 Alternate leaves, 12  
 Alumen, 31  
 Ammonia, 32  
 Ammonii carbonas, 33  
     chloridum, 33  
 Amyl nitris, 34  
 Anthemis, 35  
 Antifebrin, 35  
 Antimonii et potassii tartras, 36  
     sulphuret, 37  
 Antipyrin, 37  
 Apomorphia, 38  
 Aquæ, 145, 167  
     ammonia fortior, 34  
     fortis, 23  
 Areca, 38  
 Argenti nitras, 39  
     fusus, 39  
     dilutum, 40  
     oxidum, 40  
 Arnicae flores, 40  
     radix, 40  
 Arsenate of soda, 121  
 Arsenic iodide, 84  
 Arsenii et hydrargyri iodidi, liquor,  
     78  
 Arsenous acid, 17  
 Asafoetida, 41  
 Aspidium, 42  
 Aurantii amari cortex, 42

## B.

Balsam of copaiba, 59  
     of fir, 129

Bearberry, 139  
 Beer, 30  
 Belladonna-leaves, 43  
   -root, 43  
 Benzoic acid, 18  
 Benzoin, 44  
 Bismuth, 44  
   subcarbonate, 45  
   subnitrate, 45  
 Bitter apple, 58  
   orange-peel, 42  
 Black snakeroot, 54  
   wash, 79  
 Bloodroot, 115  
 Blue mass, 79  
   ointment, 79  
   stone, 61  
 Borax, 122  
 Boric acid, 18  
 Brandy, 30  
 Broom, 118  
 Bruising, 137  
 Buchu, 45  
 Buckthorn, 67  
 Bulb, 11

## C.

Caffea, 46  
 Caffaina, 46  
 Calomel, 76  
 Cambogia, 46  
 Camphor, 47  
 Canada turpentine, 129  
 Cannabis Indica, 48  
 Cantharides, 48  
 Capsicum, 49  
 Carbolic acid, 19  
 Cardamom, 49  
 Cascara sagrada, 114  
 Castor-oil, 96  
 Catechu, 50  
 Cera alba, 51  
   flava, 50  
 Cerates, 146, 168

Chamomile, Roman, 35  
 Chemical decomposition, 183  
 Chloral, 51  
 Chloride of zinc, 134  
 Chloroform, 52  
 Chromic acid, 20  
 Cimicifuga, 54  
 Cinchona, 54  
   flava, 54  
   pallida, 55  
   rubrum, 56  
 Citric acid, 20  
 Claret wine, 30  
 Clarification, 139  
 Coca, 56  
 Cocculus, 56  
 Codeina, 100  
 Codliver-oil, 95  
 Coffee, 46  
 Colchicum-root, 57  
   -seed, 57  
 Collodions, 147, 169  
 Colocynth, 58  
 Compound leaves, 11  
 Confections, 147  
 Contusion, 137  
 Copaiba, 59  
 Copper, 60  
 Copperas, 65  
 Cordate leaf, 11  
 Corm, 11  
 Corrosive sublimate, 75  
 Cream of tartar, 109  
 Creasote, 59  
 Crenate margin, 11  
 Croton-oil, 97  
 Cruciferous leaf, 11  
 Cryptogamia, 10  
 Crystallization, 140  
 Cubebs, 60  
 Cupri acetas, 60  
   sulphas, 60  
 Cuprum, 60  
 Cusso, 61

## D.

Decantation, 138  
 Decoction, 148  
 Dentate leaf, 11  
 Desiccate, 141  
 Dicotyledons, 10  
 Digestion, 141  
 Digitalis, 62  
 Distillation, 140  
 Donovan's solution, 78

## E.

Elixirs, 148  
 Elm-bark, 130  
 Elutriation, 138  
 Embryo, 13  
 Emplastrum, 148  
 Emulsions, 149  
 Epsom salt, 90  
 Ergot, 63  
 Ether, 27  
 Eucalyptus, 63  
 Euphorbium, 64  
 Evaporation, 140  
 Excipient, 141  
 Exsiccate, 141  
 Extract of licorice, 72  
 Extracts, fluid, 151, 170  
     solid, 149, 170

## F.

Ferri chloridi, liquor, 66  
     citras, 64  
     et ammonii citras, 65  
     et quiniæ citras, 65  
     redactum, 66  
     subsulphas, liquor, 66  
     sulphas, 65  
     syrup of the iodide of, 84  
     tersulphatis, liquor, 67  
 Ferrum, 64  
 Filing, 137  
 Filtration, 138  
 Fishberries, 56

Flaxseed, 88  
     -meal, 88  
     -oil, 89  
 Fluid extracts, 151, 170  
 Forms of leaves, 11  
 Frangula, 67  
 Fruit, 12  
 Funiculus, 12  
 Fusel-oil, 29

## G.

Gallæ, 68  
 Gallic acid, 21  
 Galls, 68  
 Gamboge, 46  
 Gaultheria, 68  
     oil of, 68  
 Gelsemium, 69  
 Gentian, 70  
 German chamomile, 91  
 Gin, 20  
 Ginger, 135  
 Glauber's salt, 122  
 Glonoinum, 70  
 Glycerin, 71  
 Glycerites, 153  
 Glycyrrhiza, 71  
     pure extract of, 72  
 Golden seal, 80  
 Green hellebore, 132  
 Grinding, 137  
 Guaiac-resin, 73  
     -wood, 72  
 Gum arabic, 15  
     benzoin, 44  
     euphorbium, 64

## H.

Hæmatoxylon, 73  
 Halberd leaves, 11  
 Heroin, 74  
 Hilum, 13  
 Honey, 91  
 Hops, 74

Humulus, 74  
 Hydrargyri chloridum corrosivum,  
     75  
     mite, 76  
     cum creta, 78  
     iodidum rubrum, 76  
     massa, 79  
     nitratris, liquor of, 78  
     ointment of, 80  
     oxidum flavum, 77  
     rubrum, 77  
     subsulphas flavus, 77  
     unguentum, 79  
 Hydrargyrum, 75  
 Hydrastis, 81  
 Hydrochloric acid, 21  
     dilute, 166  
 Hydrocyanic acid, dilute, 22  
 Hyoscyamus, 81

## I.

Ichthyol, 81  
 Incised leaves, 11  
 Incompatibilities, 183  
 Indian hemp, 48  
 Infusions, 154  
 Iodide of arsenic, 83  
     of mercury, red, 76  
     of sulphur, 84  
 Iodine, 83  
     compound solution of, 84  
     ointment of, 85  
     tincture of, 85  
 Iodoform, 82  
 Iodol, 83  
 Ipecac, 85  
 Iron and ammonia citrate, 65  
     and quinine citrate, 65  
     citrate, 64  
     powdered, 66  
     sulphate, 65

## J.

Jaborandi, 105  
 Jalap, 86

Jamestown weed, 124  
 Juniper, 86

## K.

Kino, 87  
 Kouso, 61  
 Krameria, 87

## L.

Lanceolate leaves, 11  
 Lanolin, 26  
 Lard, 26, 167  
 Lead, acetate of, 106  
     iodide of, 106  
     oxide of, 107  
 Leaves, 11  
     forms of, 11  
     margins of, 11  
     venation of, 12  
 Levigation, 138  
 Licorice, 71  
 Lini farina, 88  
     oleum, 89  
 Liniments, 154, 170  
 Linum, 88  
 Liquefaction, 140  
 Liquores, 155, 173  
 Lixiviation, 140  
 Lobed leaves, 12  
 Lobelia, 89  
 Logwood, 73  
 Lunar caustic, 39

## M.

Maceration, 14  
 Madeira wine, 30  
 Magnesia ponderosa, 90  
     sulphate, 90  
 Mandrake, 107  
 Margins of leaves, 11  
 Materia medica, 9  
     animal, 9  
     definition of, 9  
     inorganic, 9  
     organic, 9  
     vegetable, 9

Matricaria, 91  
 May apple, 107  
 Mechanical processes, 138  
 Medicated vinegars, 144, 166  
     waters, 145, 167  
 Mel, 91  
 Mentha piperita, 91  
     viridis, 92  
 Menthol, 92  
 Mercurial mass, 79  
     ointment, 79  
 Mercury, 75  
     nitrate, liquor of, 78  
     ointment of, 80  
     red iodide of, 76  
     with chalk, 78  
     yellow oxide of, 77  
     sulphate of, 77  
 Metric system, 141  
 Mixtures, 155, 170  
 Morphina, 100  
 Moschus, 92  
 Mucilages, 156  
 Muriatic acid, 21  
 Musk, 92  
 Mustard, black, 120  
     white, 120  
 Myrrh, 93

## N.

Narcotina, 100  
 Nitric acid, 23  
     dilute, 166  
 Nitroglycerin, 70  
 Nucleus, 13  
 Nutgall, 68  
 Nux vomica, 94

## O.

Obovate leaves, 11  
 Oil of amber, 97  
     of gaultheria, 68  
     of tar, 127  
     of turpentine, 127  
     of vitriol, 24

Oil of wintergreen, 68  
 Ointment of iodide of sulphur, 85  
     of nitrate of mercury, 80  
 Ointments, 164, 182  
 Oleates, 156  
 Oleoresins, 157  
 Oleum morrhuae, 95  
     olivæ, 95  
     piceis liquida, 127  
     ricini, 96  
     succini, 97  
     terebinthinæ, 127  
     theobromatis, 97  
     tiglli, 97  
 Olive-oil, 95  
 Opium, 98  
     alkaloids of, 100  
     varieties of, 99  
 Opposite leaves, 12  
 Ovate leaves, 11  
 Oxide of zinc, 134

## P.

Pale cinchona, 55  
 Paraldehyde, 102  
 Parallel-veined leaves, 12  
 Peppermint, 91  
 Pepsin, 103  
 Percolation, 139  
 Peruvian bark, 54  
 Phænogamous plants, 10  
 Pharmaceutical incompatibility,  
     184  
     preparations, classes of, 144  
     terms, 141  
 Pharmaco-chemical processes, 139  
 Pharmacology, definition of, 10  
 Pharmacy, 137  
     definition of, 9  
 Phosphorus, 104  
 Phylotaxis, 12  
 Physostigma, 104  
 Pills, 157, 174  
 Pilocarpus, 105

Pine-tar, 128  
 Pinkroot, 124  
 Pix liquida, 128  
 Plasters, 148  
 Plumbi acetas, 106  
     iodidum, 106  
     oxidum, 107  
 Plumbum, 106  
 Podophyllum, 107  
 Port wine, 30  
 Porter, 30  
 Powdered iron, 66  
 Potassii acetas, 108  
     bichromas, 108  
     bitartras, 109  
     bromidum, 109  
     chloras, 110  
     cyanidum, 110  
     iodidum, 111  
     nitras, 112  
     permanganas, 112  
 Potassium, 108  
 Powders, 158, 176  
 Processes of mechanical subdivi-  
     sion, 137  
 Prunus Virginiana, 113  
 Prussic acid, 22  
 Pulveres, 158, 176

## Q.

Quassia, 113  
 Quercus, 114

## R.

Rasping, 137  
 Rectification, 141  
 Red cinchona, 56  
 Red iodide of mercury, 76  
     oxide of mercury, 77  
     pepper, 49  
 Reduced iron, 66  
 Reniform leaves, 11  
 Repand margins, 12  
 Resin, 128

Resin of guaiac, 73  
 Reticulate veined leaves, 12  
 Rhamnus purshiana, 114  
 Rhatany, 87  
 Rheum, 115  
 Rhubarb, 115  
 Root, 10  
 Rum, 30

## S.

Sagittate leaves, 11  
 Salicylic acid, 23  
 Sanguinaria, 115  
 Sarsaparilla, 116  
 Sassafras pith, 116  
 Scammonium, 117  
 Scilla, 117  
 Scoparius, 118  
 Seed, 12  
 Senega, 118  
 Senna, 119  
 Serpentaria, 120  
 Serrated margin, 12  
 Sherry wine, 30  
 Sifting, 137  
 Silver, 39  
     nitrate, 39  
         fused, 39  
         dilute, 40  
     oxide, 40  
 Simple leaves, 11  
 Sinapis alba, 120  
     nigra, 120  
 Sinuate margin, 12  
 Slicing, 137  
 Snakeroot, black, 54  
     Virginia, 120  
 Sodii arsenas, 121  
     bicarbonas, 121  
     boras, 122  
     hyposulphis, 122  
     sulphas, 123  
     sulphis, 123  
 Sodium, 121



Solution, 139  
 of chloride of iron, 66  
 of nitrate of mercury, 78  
 of subsulphate of iron, 67  
 of tersulphate of iron, 66

Solutions, 155

Spanish fly, 48

Spearmint, 92

Spigelia, 124

Spirits, 159, 178

Squill, 117

Sulphuric acid, 24  
 dilute, 24, 167

### T.

Tannin, 24

Tar, 128

Tartar emetic, 36

Tegmen, 12

Terebene, 129

Terebinthina, 127

alba, 128

Canadensis, 129

Veneta, 129

Terpini hydras, 129

Testa, 12

Therapeutic actions, 13

incompatibility, 184

Therapeutics, definition of, 10

empirical, 10

rational, 10

Thymol, 130

Tincture of iodine, 85

Tinctures, 162, 180

Trituration, 137

Troches, 164

Tuber, 11

Turpentine, 127

oil of, 127

### U.

Ulmus, 130

Unguenta, 164, 182

Uva ursi, 130

### V.

Valerian, 131

Vegetable world, 10

Venation, 12

Venice turpentine, 129

Veratrina, 132

Veratrum viride, 132

Verticillate leaves, 12

Vina, 165, 183

Vinegar, 16

Vinum album, 165

Madeira, 30

Portense, 30

rubrum, 30

xericum, 30

### W.

Water of ammonia, 34

Waters, medicated, 145, 167

Wax, white, 50

yellow, 50

Whisky, 30

White-oak bark, 114

turpentine, 128

Wines, 30

medicated, 164, 183

Wintergreen, 68

Wood alcohol, 30

### Y.

Yellow cinchona, 55

jasmine, 69

oxide of mercury, 77

sulphate of mercury, 76

wash, 79

wax, 50

### Z.

Zinc, 133

acetate, 133

chloride, 134

oxide, 134

precipitated carbonate of, 134

sulphate, 135

Zingiber, 135









22.1. 406.

Manual of materia medica and ph1904  
Countway Library AHK3000



3 2044 045 099 652

COUNTWAY LIBRARY



HC 4EVE 6

22.I. 405.  
Manual of materia medica and ph1904  
Countway Library AHK2888



3 2044 045 099 652